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ORIGINAL ARTICLES.

SKETCH OF THE MEDICAL BUREAU WORLD'S COLUMBIAN EXPOSITION.

BY JOHN E. OWENS, M.D.

MEDICAL DIRECTOR OF THE MEDICAL BUREAU OF THE WORLD'S COLUMBIAN EXPOSITION.

CHICAGO, ILL.

ROSTER.

Medical Director.--Dr. J. E. Owens, June 1, 1891, to March 31, 1894.
Attending Physicians.—Drs. N. R. Yeager, June 1, 1891, to Nov. 30, 1893; W. H. Allport, June 1, 1891, to Nov. 30, 1893; S. C. Plummer, August 1, 1891, to Nov. 30, 1893; G. P. Marquis, Jan. 1, 1892, to March 1, 1893; E. T. Edgerly, Feb. 1, 1893, to Nov. 15, 1893.
Resident Physicians.—Drs. J. L. Hillmantel, April 10, to Nov. 30, 1893; D. M. Appel, Captain and Ass't. Surgeon, U. S. A., May 1, to May 17, 1893; W. C. Raughley, May 17, to Oct. 30, 1893.
Hospital Steward.—William Kelly, April 7, to Dec. 20, 1893.
Druggists.—Harry Kahn, April 16, to Sept. 1, 1893; F. C. Cady, Sept. Sept. 1, to Nov. 16, 1893.
Superintendent of Nurses.—Mary R. Browne, March 16, to Nov. 30, 1893, (St. Luke's Training School, Chicago).

TRAINED NURSES.

Harriet Fulmer, Anne Northwood, March 15, to April 15, St. Luke's, Chicago.
Karin Eckstrom, March 15, to November 15, Stockholm, Sweden.
Helen Parr, April 16, to August 1, Louise Richey, August 1 to December 1, St. Luke's Chicago. (Surgical Nurses).
Bessie Woolings, May 1, to June 1, Guy's Hospital, London, Eng.
Emma Dawson, May 1, to June 15, St. Luke's, Chicago.
M. McDonald, E. McDonald, May 15, to June 15, Boston City Hospital.
M. Clark, A. Smith, May 15, to June 15, Massachusetts General Hospital.
Mary Forbes, June 1, to August 15, St. Luke's, Chicago.
Muriel Moberly, different terms between June 15, to November 15, St. Luke's, Chicago.
Helen Wiltsie, June 15, to July 15. St. Luke's, Chicago.
Susan Read, Mary Townsend, June 15, to July 15, Johns Hopkins Hospital.
Catherine DeWitt, Eliza Moore, June 15, to July 15, Illinois Training School.
Clara E. Parsons, Marie A. Lawson, July 15, to August 15, Michael Reese Hospital.
Anna Bartle, July 15, August 15, Toronto General Hospital.
Alice Cooper, Lockhart Baillie, July 15, to August 15, Bellevue Hospital.
Bessie Woffendin, August 15, to September 15, Toronto General Hospital Toronto, Canada.
Alice Buckman, M. L. Van Thyne, August 15, to September 15, Philadelphia Hospital.
I. C. Mathis, A. N. Bartholomew, August 15, to September 15, University of Pennsylvania Hospital.
Ruth Williams, Helen Barnard, September 15, to October 15, Johns Hopkins Hospital.
Martha Munn, Margaret Munn, September 15, to October 15, New York Hospital.
Virginia Williams, August 15, to October 1, St. Luke's, Chicago.
Mary Shears, July 15, to October 1, St. Luke's, Chicago.
Agnes McCoy, July 15, to September 15, St. Luke's, Chicago.
Gertrude Phillpotts, September 15, to November 15, St. Luke's, Chicago.
Pauline Hollenbeck, Florence Bell, October 1, to November 15, St. Luke's, Chicago.
Elizabeth Pope, October 1, to November 1, St. Luke's, Chicago.
Margaret M. Watson, Annie Louise Higgins, October 15, to November 6, St. Luke's, New York.
Nettie West, October 15, to October 30, Michael Reese Hospital.

Superintendent of Ambulance Service.—H. W. Gentles, M.D., April 10, to November 30, 1893.
Superintendent of Ambulance Corps.—J. F. Minot, April 10, to November 12.
Ambulance Corps.—C. L. Hammond, W. K. Hammond, H. A. Adams, John T. Hutchcroft, C. Brooker, J. S. Brown, Edgar Thomas Lucas, M. E. Wheelan, J. H. Missey, A. M. Schabad, J. M. Smith, L. M. Dunavan, J. C. Egan, E. B. Hutchison, H. G. Graham, H. B. Bartholomew, W. B. Robinson, C. W. Culp, Fred Herr, J. L. Allen, T. H. Little, M. G. Bryan, Morgan Savidge, J. W. Walker, C. E. Downey, L. W. Dunavan, and others.
Ambulance drivers.—M. J. Sanborn, F. H. Crein, E. J. Pettinger, D. M. Good, J. H. McLernon, J. W. Tarbell, J. E. Price, and others.
Orderlies.—Claus Williams, A. H. Kennedy, Chas. Webster, N. K. Derderian, J. E. Johnson.
Chief Sanitary Officer.—D. M. Appel, M.D., May 17, to July 26, 1893.
Sanitary Inspectors.—J. H. Kellogg, Mary Glennon, Anna Byford Leonard.
Recording Clerk.—Alexander Goldstein, May 8 to first week of December.
Stenographer and Typewriter.—Anna H. Newton.
Messenger.—Frank Frisbie.
Telephone operator.—Robert Rozeine.
Janitors.—A. U. Brown, George Blakey, E. Fleming, and others.
Ward maids.—Christine Webster, Anne Boettner, Rachel Ellingston.

DEDICATION DAY AND THE DAY FOLLOWING.

Drs. E. T. Edgerly, Jennie Hayner, Bertha Van Housen.
Trained Nurses for the Hospital (Dedication Days).—E. Farrow, M. Moberly, E. Dawson, E. Jackson, C. Fowler. *Ward maid.*—Rachel McVicker.
Trained Nurses at the two Substations in Manufactures Building.—M. R. Browne, Louise Richey, M Bryce, R. A. Ellerby.
Orderly at Hospital.—H. T. Haas.
Orderlies at Substation.—J. W. Walker, O. O. Witherbee.
Ambulance Surgeon.—Dr. G. P. Marquis.
Litter Bearers on Ambulance.—J. A. Pohling, C. Ehling.

ORGANIZATION.

The last week in May, 1891, the Committee on Grounds and Buildings established the Medical Bureau, and, after a conference with Mr. E. T. Jeffery, Chairman of said Committee, the position of chief medical officer of the Exposition Company was accepted. On May 29 the following general arrangement was agreed upon and approved:

That the title of the chief medical officer should be "Medical Director;" that the appointment be effective June 1, 1891; that the Medical Director shall have authority to appoint, subject to the approval of the Committee on Grounds and Buildings, such assistants as he may deem necessary for efficiency in organization and the prosecution of the work.

The duties of the Medical Director were thus formulated: To organize a medical bureau having jurisdiction over all cases of personal injury occurring in the line of duty; to assume the care of the resident population and visitors, and such other cases as the Exposition Company might be responsible for, or in its judgment should be cared for; to exercise a supervision over all sanitary and hygienic matters connected with the grounds and buildings, and over all matters pertaining to the health and physical well-being of the construction employees engaged in the conduct of the Exposition.

In the pursuance of some of the foregoing objects, it was decided to establish a temporary hospital upon the grounds and afterward, as circumstances might require, and after conference with the Committee on Grounds and Buildings and the Construction Department, to construct a building better suited to meet the exigencies of the Medical Bureau.

The Medical Director was instructed to report to and receive his instructions from the Committee on Grounds and Buildings, and to confer from time to time, as circumstances might suggest, with Mr. D. H. Burnham, the Chief of Construction, or his representatives, in order that coöperation might be secured in accomplishing the purposes in view.

It was agreed that the Medical Director should keep such reports and data regarding his bureau as would enable him to make monthly reports to the Committee on Grounds and Buildings, and a final report at the close of the Exposition.

Blank pay rolls, vouchers and other stationery required were furnished on the order of the Medical Director upon the Grounds and Buildings Committee.

A monthly pay roll for himself and assistants was made by the Medical Director, and the same trans-

mitted to the Committee on Grounds and Buildings; and, at the same time, duly certified bills and vouchers for expenses. The attending physicians treated all cases of illness and injury brought to the emergency hospital, and devoted more or less time to sanitary inspection during the construction period. The grounds were districted in order to facilitate this work.

The large resident population, together with the great number of workmen about the grounds at all times, necessitated the appointment of resident physicians who lived in the emergency hospital. As these gentlemen were required to reside in the hospital they could not, therefore, engage in private practice. The duties pertaining to the office of resident physician consisted for a time in the inspection of grounds and buildings; care of the resident population; they were responsible for the efficiency of the hospital service; for the conduct of the hospital in general during the absence of the Medical Director; they furnished a report of deaths, weekly and daily reports of the work performed and, as occasion required, they aided the attending physicians in the performance of their work.

It gives me pleasure to testify to the ability with which both attending and resident physicians performed their onerous duties; to their loyalty to the service; to the promptitude with which they filled their daily appointments and to the courtesy and helpfulness extended to the sick and injured. All of this largely contributed to the success of this department of the Exposition.

On July 15, 1892, the Medical Bureau was placed under the auspices of Mr. D. H. Burnham, Chief of Construction.

BUILDINGS.

For the beginning of the dispensary work, temporary quarters were at once secured in a corner of a room then used by the Construction Department. Soon after, a one-story building was erected, consisting of a waiting room, a sleeping room, an operating room and a store room. This was speedily equipped and occupied July 20, 1891. The hospital was soon after erected, and formed a part of the Service Buildings at Sixty-second Street. Sept. 3, 1892, we moved into this building, but it was at that time mostly occupied by a portion of the clerical force of the Construction Department. Work began here in four rooms. Oct. 19, 1892, the south wards were made available—one for men and the other for women. Feb. 1, 1893, the operating room was secured. April 24 to 28, 1893, the north wards were evacuated by the clerical forces, and still later, the room occupied by the telegraph operators.

The emergency hospital contained on the first floor the following: Two wards of ten beds each for men; one ward of ten and another of three beds for women; Medical Director's office; resident physicians' office; attending physicians' office; office of the Superintendent of Nurses; a diet kitchen; drug room; linen and clothes closet; two examining and operating rooms and closets; reception room and two waiting rooms—one for men and one for women. In addition to the beds above noted, ten rattan lounges were distributed about the wards and corridors. On the second floor were the dormitories for nurses, resident physicians and druggist. No meals were served in the hospital for either patients or staff, but in the diet kitchen the nurses prepared soups, teas and refreshing and stimulating delicacies. It was a rare exception to keep a patient over night.

In cases where transportation of patients to the hospital is rendered difficult or impossible in consequence of dense crowds, temporary substations or portable hospitals should be established. From five to ten beds in each, according to circumstances, would be sufficient in most cases. They answer admirably, provided precautions be taken to prevent the demand from over-reaching the capacity. On such occasions even the passage of carriages through the street on their way to the hospital for the purpose of conveying patients to their homes, railway stations, or hotels, was extremely difficult and time-consuming.

On Chicago Day when there were 716,881 paid admissions, the Exposition being open both day and night, the necessity for these extra provisions was very great.

TRAINED NURSES.

The desirability of employing only trained nurses for the emergency hospital was apparent from the outset, but the expenses pertaining thereto would have been considerable at the ruling rates in this city. The scheme finally adopted was as follows: To offer an opportunity to the leading training schools in the country for the representation of their schools by the sending of two trained nurses to serve thirty days at $25 a month, with allowances, such as board, lodging and laundry service. This offer was readily accepted. The nursing force was placed in the charge of Miss M. R. Browne, a graduate of St. Luke's Training School for Nurses, Chicago. Her title was "Superintendent of Nurses." Her appointment was made effective March 15, 1893. Exclusive of the superintendent, at first there were ten nurses, one of whom was called "the surgical nurse." The latter had charge of the operating room and the preparation of instruments for operations, and when on duty, was always in service at the operating table. Each nurse was on duty eight hours and off sixteen hours. In this way they were able, while giving their schools representation in the work, to study the Exposition and at the same time render us that skilled service which is now so much in demand in our own and other countries. They remained in service from 8 A.M. until 11 o'clock at night. After that hour a sufficient force was always available at the hospital at a moment's notice, however great the demand. The following institutions were represented: Bellevue Hospital, New York Hospital, St. Luke's Hospital, New York; Philadelphia Hospital, Hospital of the University of Pennsylvania, Johns Hopkins Hospital; St. Luke's Hospital, Chicago; Michael Reese Hospital, Illinois Training School, Massachusetts General Hospital, Boston City Hospital; Guy's Hospital, London, England; one in Stockholm, Sweden, and Toronto General, Canada. We had a greater number from St. Luke's Training School, Chicago, than from any other, and made a point of keeping a nucleus of nurses from that institution, familiarized with the work. After the first month, in addition to the Superintendent of Nurses, we never exceeded twelve on duty at one time, except during three or four weeks subsequent to the Cold Storage disaster, when fourteen nurses were required. By common consent four nurses were known as "the pioneer nurses," namely Miss M. R. Browne, Superintendent, and the Misses Fulmer, Eckstrom and Northwood. These, under the guid-

ance of their able superintendent, in a building at that time a notable thoroughfare and well filled with officers and clerks whom we often despaired of dislodging, in the midst of the legitimate professional work then going on, including the examination of many hundreds of guards, without exaggeration, absolutely quarried their way through many obstacles and eventually there appeared a hospital that we believe was pleasing to all.

As attachés of the nursing force there were four orderlies and two ward maids. Their duties consisted of stretcher work, lifting patients, assisting in the examining room, cleaning, etc. In addition to these, four colored janitors took care of the building and kept the drug room in order. Two telephones—one for "long distance" and one for "short distance"—were early found necessary.

When fully equipped, the personnel of the emergency hospital consisted of the following: Two resident and four attendant physicians, a superintendent of nurses, with a corps of twelve trained nurses, four orderlies, a druggist, a recording clerk, a messenger boy, a telephone operator, four janitors and a hospital steward, who had care of the property, records, reports, and who transacted the general business pertaining to the Medical Bureau. For a time daily, and on all special occasions, when the crowds were the greatest and the demands upon the hospital were proportionately increased, Columbian guards were detailed for service at the entrance of the hospital.

All were uniformed—the physicians in navy blue, the orderlies and litter bearers in gray and the nurses in the uniforms of their respective schools, except the superintendent of nurses who wore white.

A general kitchen was not included in the plan, and therefore no meals were served in the hospital. The nurses ate at the officers' mess at hours specially fixed. The diet kitchen was used solely for the preparation of special diet for the sick and injured. It was a rule of the department that patients should not be kept over night. Exceptions were made only when absolutely necessary.

AMBULANCE SERVICE.

During the pre-Exposition period the sick and injured were transported in patrol wagons. At the dedicatory and opening exercises, as well as on other occasions where the people were densely massed, invalid chairs, marked with a conspicuous red cross on white background, in charge of trained men, were stationed on the outskirts of the crowd. Sometimes the location of the chairs was indicated by means of a very large red cross on a sheet on the sides of the building and above the level of the crowd. The work of the ambulance corps proper began on May 1, with the opening of the Exposition. At first, four ambulances were put into service, but the exigencies did not seem to require the fourth one and its use was discontinued. In less than fifteen seconds after a call had been received a wagon was ready for the start. The ambulance corps numbered twenty-five men (litter bearers), exclusive of their sergeant, J. F. Minot, and nine drivers. The latter were not allowed to leave the box. Dr. H. W. Gentles, the superintendent of the ambulance service, received his instructions from the Medical Director. Dr. Gentles thoroughly drilled the ambulance corps in "first aid," and performed his duties in a very able manner. He had had, previous to his appointment, much experience in this kind of work. The greater proportion of the litter bearers were young medical men who had had more or less experience as hospital internes; some had seen service in the Army Hospital Corps; others were medical students, and all were well fitted for this special branch of the service.

Quick transportation through large crowds was a matter of extreme difficulty. This was avoided occasionally by the use of the Ashford Wheeled Litter, loaned by the St. John's Ambulance Association. This litter and the invalid chairs above mentioned were of great service in moving patients either through large buildings or through dense crowds to points where the ambulances could continue the transportation to the emergency hospital. The principal days on which these precautions were found necessary were the Opening Day, Infanta's Day, the Fourth of July, Rajah's Day, Illinois Day and Chicago Day. The system of communication between the sick and the ambulance was as follows: A friend of the sick person called the nearest guard, who telephoned by means of the nearest patrol box his desire for an ambulance and, if possible, the nature of the case. The call on being received by the central office was transferred to the nearest ambulance station, and the ambulance wagon immediately took the shortest and most unfrequented road to the box. It was the duty of the guard to remain at the box until the ambulance wagon arrived in order to direct the bearer to the case, which was then, after the immediate indications were fulfilled, removed to the hospital. On days when there were especially large crowds, men were stationed at certain boxes marked by large red cross flags. In this way, any person who had a sick friend had no difficulty in knowing where assistance was to be received. After patients had been treated at the hospital the ambulances were frequently called into requisition, either to transfer a patient to his home, to his hotel, or, again being placed in a rattan basket stretcher, he was sent by rail to the point nearest his home or hospital, and there the city police ambulance or patrol wagon completed the transportation. The men remained on duty eight hours, there being three reliefs in the twenty-four hours. The ambulances were in service from 8 in the morning till 11 o'clock at night, and longer when necessary. One wagon, that was nearest the hospital, remained on duty twenty-four hours, so that a constant ambulance service prevailed. Two drivers were assigned to each wagon, with the exception of the hospital ambulance, which had three—two during the day and one at night. Each of two wagons had an assignment of one pair of horses. The hospital ambulance had two pairs, and in the event of any sickness among the horses, substitutes were easily obtained. The ambulance corps had several calamitous accidents to take charge of—three in particular. The fatal Cold Storage fire occurred July 10. On this occasion twenty-two cases were brought to the hospital in a very short space of time. The men also, in addition to their ordinary duty, remained at the scene of the fire and took care of any trivial accidents incident to the occasion, and also supplied coffee, sandwiches, etc., to the workers. On June 28 a floor gave way in one of the temporary buildings and injured a considerable number of people. Thirty of these were taken care of by the ambulance corps. On the occasion of the accident

on the ice railway the sufferers were removed quickly and with dispatch to the hospital. On July 4, 70 calls were answered; In May, 315; in June, 406; in July, 581; in August, 564; in September, 605; on Chicago Day (October 9), 172. One ambulance was stationed at the hospilal building; another contiguous to Terminal Station, Machinery Hall, and the Grand Plaza, and a third at the east end of Midway Plaisance, convenient to the north end of the grounds. While there were a number of narrow escapes, no visitor or employee was actually struck by either horse or ambulance. The latter carried, in addition to splints and litter, a bag with all necessaries likely to be called for in an emergency case. Moreover 150 light stretchers, with a single blanket for each, were enclosed in white canvas bags marked, "Stretcher" and placed in conspicuous places in the chief buildings, to be used in the event of a great accident. These were easily obtained.

RULES FOR AMBULANCE SERVICE.

1. All calls are to be taken on the telephone by No. 1, who shall repeat the message over again to the operator.

2. No. 1 shall in all cases inform the driver whether there is any special reason for haste.

3. On receipt of a call, the wagon is to leave the station in the shortest possible time. All unnecessary bustle and noise is to be avoided.

4. The driver shall always take the most unfrequented and shortest route to and from an accident. No driver shall use the gong when not necessary, but if path is crowded he is to keep gong going so that everybody has sufficient time to get out of the road. The gong must always be rung before turning a corner. All guards or guides shall do everything in their power to facilitate the progress of the wagon whether they be on duty or off.

5. The man on the wagon must always report the name and number of any guard who does not assist in clearing the way for the wagon; also any person, carriage or chair so placed, driven or wheeled as to obstruct the passage for the wagon.

6. All reports are to be handed in (in writing) as soon as possible to the Superintendent of Ambulance, so that he may investigate the report and forward the result to the Medical Director for instructions.

7. If, on arriving at the place from which the call has been sent, there is nobody at the box to direct the ambulance men this fact must be reported at once to the Superintendent.

8. All members of the corps *must* show the utmost consideration to sick and injured persons and their friends, especially ladies. They shall always try to accommodate one of the patient's friends inside the wagon; otherwise nobody is to be allowed to be inside or on the steps of the wagon.

9. Men off duty are *never* to ride on the wagon.

10. The ambulance of the Bureau, while engaged in going for or in carrying sick or wounded persons to or from the hospital or substation, shall have the right of way, excepting fire apparatus responding to alarms of fire, against any person, carriage or incumbrance, put, driven or being in streets, and no person shall obstruct said ambulance while so engaged if there shall be an opportunity to get of the way.

By the courtesy of the Chief of Police of the city of Chicago, Major McClaughry, this rule holds good outside the grounds, and city police officers have instructions to give ambulances of the Bureau the right of way in the streets of the city of Chicago.

Approved.

JNO. E. OWENS, Medical Director.
D. H. BURNHAM, Director of Works.

WATER.

The statistics of the Department of Health of the City of Chicago showed, to February, 1892, a very serious death rate from typhoid fever, the number of deaths from this cause for the year ending Feb. 29, 1892, being nearly two thousand. After this date the water supply of the city was much improved by the extension of tunnels. The general supply of water for the city, contiguous to the Exposition grounds, was obtained from the lake through the pumps at Hyde Park Station at 68th Street. The supply to the grounds was independent of that to the city, and furnished by means of pumps erected at Hyde Park Station by the Exposition Company, and to be taken by the city, after the close of the Exposition. The amount of water which could be pumped was 24,000,000 gallons daily, but the domestic consumption on the grounds averaged about eight million gallons per day. The extension of the tunnel into the lake had not been completed, and pure water for the workmen became a desideratum. As soon as practicable, arrangements designed and constructed by Mr. W. S. MacHarg, Engineer of Water Supply, Sewerage and Fire Protection, were completed for the supply of sterilized water for the use of constructionists and others. The method of preparing the drinking water was as follows: Adjacent to the boiler room at the temporary power house four tanks were set, the number being afterwards increased to seven, graded and elevated so that there was a difference of level between each successively. Each tank was seven feet in diameter and nine feet high and made of cypress. The upper tank was used for cooling, and a coil of inch pipe was placed in it, delivering at the top on a pan from which the water flowed in a thin sheet lnto the next tank below and overflowed through a pan in the same manner to the successive tank. The water was thus aerated and cooled at the same time. A feed water heater was set in the boiler room, and the water delivered under pressure through this heater into the coil, the steam in the heater being at ninety pounds pressure, and the water supply throttled so that a temperature greater than 212 degrees Fah. was obtained. From the lowest tank the water was drawn off at a point about two feet above the bottom into tank carts for delivery on the ground. At this time there were forty-one barrels or casks in service, with an additional thirty-five for use whenever required by any increase in the force. Each of the barrels was emptied and refilled daily, without regard to the amount of water it may have contained on the arrival of the water cart. Every Sunday the tanks were emptied and washed out thoroughly with a hose. In tank No. 1, where the boiling was done, there was a great deal of mud precipitated during the boiling of the water. There was no mud in remaining tanks. At this date (May 20, 1892), with forty-one barrels, one water cart, and with two men, the service was efficient.

Although we had been boiling the water for the use of the men on the grounds, and so far as in our power

had made it convenient for them to use it, it was with more or less difficulty that the employees were prevented from using hydrant or surface water. We did not at this time consider the untreated lake water safe, and notices were distributed prohibiting the use of water from hydrants and lagoons.

In April, 1893, before the opening of the Fair, the number of barrels in use amounted to about three hundred. It was not intended to carry the use of this sterilized water into the period of the Fair, the filtered water and the Waukesha water (spring water) being intended to serve the general public, but as the number of visitors increased in July and August it was found necessary to revert to the system in order to furnish an adequate supply. Later, the number of barrels was greatly reduced. Consequently, the sterilizing plant, which had been torn down upon the removal of the temporary power plant immediately before May 1, was re-erected in connection with the boiler plant in Machinery Hall, and this service reinstated. City water was used in the barrels previous to the re-erection of the sterilizing plant. August 3, sterilized water was again furnished, and its use continued to the end of the Fair. On certain other occasions, owing to changes in the temporary power plant, it was necessary for several days at a time to discontinue the use of sterilized water, and the barrels were filled directly from the city main. An excess of gastro-intestinal disorders was observed by this Bureau, and the Department of Water Supply, Sewerage and Fire Protection was at once notified. The sterilization of the water was of great importance, and the bacteriologic reports furnished by Mr. Allen Hazen, chemist, proved that it compared most favorably with any water in use during the Exposition.

The Waukesha Hygeia Mineral Spring Company obtained a concession for the exclusive privilege of piping water a distance of one hundred and one and a half miles and delivering it from the Springs in Southern Wisconsin, on the grounds of the Exposition, and there retailing the same from numerous booths at a cent a glass, and also furnishing it to customers at a price not to exceed five cents a gallon. This water was passed through a cooling plant sufficient to reduce its temperature. The machinery had a capacity for reducing 60,000 gallons of water from the ordinary temperature to 40 degrees Fah. in sixteen hours. There were at one time during the summer 167 drinking booths in and outside of the buildings, and 372 private taps for wholesale delivery.

In addition to the sterilized water above referred to, free filtered drinking water was furnished at available points by means of a hundred Pasteur filters, the capacity of each being about two hundred gallons. Four faucets and four cups were furnished each filter. No attempt was made to cool this water, but its quantity and quality, as shown by the bacteriologic examinations by Mr. Hazen, were very satisfactory.

Every endeavor was made to force concessionists, State officials and restaurant people on the grounds to filter all water used for drinking. This was in a measure successful. Filters of many kinds were used by these parties, some of them probably without much benefit. This order did not apply to the Waukesha Mineral Spring Company's supply, piped from Waukesha, Wis.

So much for the efforts of the Exposition Company to furnish innocuous water to its visitors. The report of Mr. MacHarg, the Engineer of Water Supply, etc., will furnish additional details.

SEWERAGE.

The sewerage system of the city of Chicago did not extend into Jackson Park. For the care of the excreta during the construction of buildings, wooden privies with concrete floors were provided, each privy containing thirteen seats, with stalls and galvanized iron pails for solids, and troughs and sumps for fluids, and with a separate urinal trough just above the pails, and also a general urinal trough of galvanized iron along the wall facing the stalls.

An attendant threw into the pails from time to time, as became necessary, dry earth pulverized at the temporary power plant, for the absorption of dampness and the prevention of odor. A solution of copperas was from time to time freely applied to the troughs which led to the sumps, and to all the parts of the privy exposed to contamination.

A tank cart made the rounds at night, and the catch basins were pumped out and washed with copperas and the urinals carted to the nearest city sewer and dumped. The solids were conveyed to the southern portion of the grounds and dug into black earth. This proved most satisfactory except on one or two occasions of very wet weather in the spring of 1892.

Avoiding any system of contract scavengering, the Department of Water Supply, Sewerage and Fire Protection detailed its own men for the care of the privies and the disposal of the excreta. In this way the results of the system proved most satisfactory. This system was continued until the completion of the general system of sewerage and plumbing, which was shortly before the opening of the Exposition. The system last referred to, namely, for the use of the Exposition, was as follows:

All roof water was discharged directly into the lagoons or Lake Michigan, as was most convenient, through pipe sewers ordinarily, brick sewers being required in one or two cases only.

All surface water from walks, whether resulting from rain or from washing, was discharged through a system of vitrified sewer pipes to wells conveniently and economically located, and thence pumped directly to Lake Michigan. This water, while not seriously contaminated, was thought to contain sufficient organic matter to make its discharge into the lagoons undesirable. The sewage proper; that is, the discharge from water closets, lavatories, café kitchens, etc., was pumped by means of fifty-two Shone ejectors through cast iron force mains and discharged into tanks at the cleansing works, which were located in the southeastern portion of the grounds. Here sewage was treated with chemicals. Most of the suspended matter and a large part of the organic matter in solution were precipitated, and a clear effluent water, from which all highly putrescible matter had been removed, was discharged into the lake. The precipitant commonly called "sludge" was forced into filter presses and pressed into the form of cakes, which were afterwards burned at the crematory in the extreme southeastern portion of the grounds. These cakes came out very hard, having been deprived of about 50 per cent. of the water by pressure.

Garbage and ashes were handled in the following manner: The former was placed in galvanized cans placed outside of the buildings at 11 o'clock each

WORLD'S COLUMBIAN EXPOSITION MEDICAL BUREAU. SUMMARY OF WORK DONE AT EMERGENCY HOSPITAL DURING THE CONSTRUCTION AND EXPOSITION PERIODS.—CONSTRUCTION 1893.

	Construc. Period.	Exposition Period: May.	June.	July.	Aug.	Sept.	Oct.	Total.
New medical	2,555	988	1,137	1,447	1,631	1,641	1,802	11,201
New surgical	3,364	489	498	513	443	459	554	6,320
Re-treated medical	2,738	474	533	354	406	301	333	5,139
Re-treated surgical	3,196	670	798	978	689	586	575	7,492
	11,853	2,621	2,966	3,292	3,169	2,987	3,264	30,152
Employes, male		2,439	2,328	2,356	2,023	1,564	1,642	12,352
Employes, female		40	110	236	215	226	184	1,011
Visitors, male		70	249	360	523	687	752	2,641
Visitors, female		72	279	340	408	510	686	2,295
		2,621	2,966	3,292	3,169	2,987	3,264	18,299
Total of male patients		2,509	2,577	2,716	2,545	2,251	2,394	14,992
Total of female patients		112	389	576	624	736	870	3,307
		2,621	2,966	3,292	3,169	2,987	3,264	18,299
Maximum daily No. of patients		123—29th	147—17th	170—4th	149—24th	151—14th	253—9th	
Minimum daily No. of patients		35—21st	48—4th	27—23rd	33—27th	31—2nd	33—1st	
Daily average		84.54	98.86	106.19	102.22	99.56	108.60	
Deaths	32	4	7	15	3	3	4	68
Births	1 full	2 prem.	2 prem.	1 full	1 full			7
In-patients, male		104	106	188	207	223	245	1,073
In-patients, female		35	237	461	489	602	764	2,588
Ambulance calls		315	406	581	564	605	790	3,261
Examination of guards	5,370	1,072	293	73	288	317	344	7,757
Highest mean temperature		72°—20th	80°—21st	83°—12th	82°—10th	82°—14th	70°—11th	
Lowest mean temperature		40°—6th	53°—11th	64°—3d	58°—29th	46°—25th	33°—29th	
Total attendance		1,531,984	3,577,834	3,977,502	4,687,708	5,808,942	7,945,430	27,529,400

night, and taken up by the Transportation Department, Mr. W. H. Holcomb, General Manager, and deposited at the crematory.

The ashes and garbage were kept separate. Ashes were utilized for "filling" on the grounds. The quantity was not great, as almost all of the cooking was done by gas.

Inasmuch as a constant fire existed at the crematory, the garbage was disposed of as soon as received. It created no nuisance whatever, and the raw material was very quickly reduced. The crematory was operated by oil as a fuel, and its practicability and efficiency were fully demonstrated.

Creolin-Pearson, in strength of one ounce to a gallon of water, was liberally used to disinfect stables, water closets, urinals, different portions of the grounds and buildings, and proved to be very efficient. Tin hand sprinklers were found convenient for its distribution.

After the opening of the Fair it was found necessary to erect a few free urinals. These were composed essentially of small wooden buildings with concrete floors and with four slate stalls emptying through a trap directly into the sewer. They operated satisfactorily.

The whole system of sewerage was constructed and operated by Mr. W. S. MacHarg, Engineer of Water Supply, Sewerage and Fire Protection.

SANITARY INSPECTION.

Previous to the opening of the Exposition, the inspection of grounds and buildings was very satisfactorily performed by the attending physicians. The grounds were divided into sanitary districts in order the better to systematize the work. The physicians furnished weekly reports of the condition of their districts, covering privies and closets, water supply and drainage, the condition of grounds, buildings and of population.

Finally, the hospital work increased to such a degree as to necessitate special appointments for the performance of this function.

Inspection of grounds and buildings went on daily, and each Inspector furnished a report to the Medical Director every evening, covering the buildings and localities visited, sanitary condition of the same, with remarks and recommendations. From the reports of the Sanitary Inspectors the Medical Director furnished each day to the Director of Works a condensed report.

EXPENSES.

	Cr.	Dr.
Expense of Bureau to Dec. 31, 1893		$44,277.17
Expense of Bureau from Jan. 1 to March 31, 1894		638.79
Credits: Sale of bedding, furniture, instruments, pharmaceutical implements, ambulance	$2,788.86	
For "first aid" to injured	2,116.08	
	$4,904.44	$44,915.96
		4,904.94
Net expenditure		$40,011.02

DEDICATION.

For the exigencies of the dedicatory services on the grounds Friday, Oct. 21, 1892, and of the dedication of certain State Buildings October 22, the following organization was effected:

1. The employment of four nurses and one head nurse, an extra male orderly and a female orderly for the emergency hospital.

2. The establishment of a substation (No. 1) in the north end of the Manufactures Building (west side), divided into three rooms, one bed and a rattan lounge in each of two of these, the reception room being in the center, in charge of Dr. W. H. Allport and Dr. Bertha Van Housen, with two trained nurses and one male orderly. Another substation (No. 2), like No. 1, in charge of Dr. E. T. Edgerly and Dr. Jennie Hayner, was located in the south end of the building, east side. These were otherwise equipped for meeting such emergencies as arose. They were numbered 1 and 2, and also distinguished by the flag of the Medical Bureau. A patrol wagon inside of the Manufactures Building was at the disposal of the medical officers in charge upon application to the guard in attendance, and one of our ambulances was stationed at a convenient point.

3. Four janitors were detailed to take charge of as

many wheeled chairs, designated by a red cross on white background, stationed where they would be most promptly available. Instructions were given to bring the patient to the substations by the shortest available routes. As rarely as possible the ambulance and patrol wagon were called into service for conveying patients from the substations to the hospital. Temporary provision was made for the ambulance service. Dr. G. Paul Marquis, one of the attending physicians, was detailed to accompany the ambulance and to direct and to have charge of the ambulance corps.

4. The southeast and southwest wards in the hospital were equipped, and the Medical Director's office, located between these two rooms, was furnished for the occasion.

5. Telephones were placed in the substations.

6. Certain guards were instructed to coöperate with the medical staff to preserve order, to keep clear space for the cases of accident and illness, to allow free ingress and egress of the medical officers wearing the badge of the Medical Bureau, the ambulance, the nurses in uniform and to facilitate the transfer of patients on wheel chairs or on foot to the substations.

7. Orders were issued to secure as direct a route for the ambulance from the substations to the emergency hospital as the circumstances of the occasion would permit.

8. At the expiration of the service it was the duty of the medical officers in charge of the substations to see that the whole medical outfit was immediately removed to the emergency hospital by one of the patrol wagons or the ambulance.

TABLE OF DISEASES AND INJURIES TREATED BY THE MEDICAL BUREAU, WORLD'S COLUMBIAN EXPOSITION, CHICAGO, ILL.

	Construction period.	Exposition period.	Post exposition period.	Total. (not including post exposition period.)
Continued and eruptive fevers	569	929		1498
Malarial fevers	186	291		427
Erysipelas	4	2		6
Syphilis	4	5		9
Rheumatism and gout	30	249		279
Diseases of the nervous system	183	1740		1923
Diseases and injuries of the eye	198	469		667
Diseases and injuries of the ear	7	36		43
Diseases and injuries of the nose	39	44		83
Diseases of the circulatory system	13	50		63
Diseases of the respiratory system	280	367		647
Diseases of the digestive system	999	4452		5451
Diseases of the lymphatic system	15	7		22
Diseases of the urinary system	18	65		83
Diseases of the generative system	21	154		175
Diseases of the female breasts	1	6		7
Diseases and injuries of bone and periost	8	4		12
Diseases and injuries of joints	10	8		18
Diseases and injuries of tendons and bursæ	13	11		24
Diseases and injuries of connective tissues	23	17		40
Diseases and injuries of the skin	299	636		935
Toxic diseases	12	47		59
Edema local	3	3		6
Abscess (not classified)	21	34		55
Burns	67	126		193
Scalds	16	18		34
Sunstroke	4	4		8
Exhaustion	57	. . . .		57
Wounds, (incised, contused, lacerated and punctured)	2373	1568		3941
Sprains	230	133		363
Dislocations	34	18		52
Fractures of the skull	14	6		20
Fractures of bones (other than skull)	200	86		286
Concussion of brain and spinal cord	9	9		18
Amputations	9	8		17
				17,521
Totals	5,919	11,602	619	18,140
Re-treated	5,934	6,697	513	13,144
Totals	11,853	18,299	1,132	31,284
Deaths	32	36	1	69
Births	1	* 6	. . .	7

Not classified 619.

* (4 premature.)

The following notice to visitors was distributed over the grounds and buildings:

WORLD'S COLUMBIAN EXPOSITION—MEDICAL BUREAU.

NOTICE TO VISITORS.

The following stations have been established within the grounds of the World's Columbian Exposition for the gratuitous treatment of those taken sick or injured during the dedication services of Oct. 21 and 22, 1892.

Emergency Hospital.—At the southeast corner of the Service Building, near the Sixty-second Street gate.

Substation 1.—At the northwest corner of the Manufactures and Liberal Arts Building, facing west toward the Wooded Island.

Substation 2.—At the southeast end of the same building, east of the Music Stand and facing the Lake.

These stations will be open continuously on October 21 and 22, and will display the Geneva cross. All employees of the Medical Bureau will display the same emblem.

Invalid chairs belonging to this Bureau and bearing the Geneva cross will be found in the side aisles of the Manufactures and Liberal Arts Building. An attendant will be in charge of each chair and will convey patients to substations 1 and 2.

A chair will also be stationed at the landing stairs on the west bank of the lagoon, east of the Transportation Building.

The Columbian Guards will furnish information as to the location of the stations of the Medical Bureau.

(Signed.) JOHN E. OWENS, Medical Director.

KINETIC THERAPEUTICS IN GYNECOLOGY OR THURE BRANDT'S SYSTEM.

BY SOFIE A. NORDHOFF, M.D.

WASHINGTON, D. C.

LATE VOLONTAERARTZ OF THE ROYAL UNIVERSITY HOSPITAL FOR WOMEN. MUNICH (BAVARIA); LATE ASSISTANT OF THE OUT-DOOR DEPARTMENT OF THE HÔPITAL BAUDELOCQUE, PARIS.

During my recent trip to Europe, I became greatly interested in a method of treatment in gynecology which, it has been demonstrated to me, is peculiarly adapted to a certain class of cases not so readily amenable to treatment by other means. This method is known to most practitioners under the name of Brandt's method or pelvic massage, a term which is not employed by the disciples of Brandt. The Germans call it Thure Brandt's system in gynecology, mechano-therapie—or Mannelle Behandlung—while the French school prefers the name, *kinésitherapie gynécologique* or kinetic therapeutics. It has the warmest advocates among great gynecologists such as Schauta, of Vienna; Schultze, of Jena; Freund, of Strassburg; Profanter, Prochownik, Ziegenspeck, and many other eminent specialists.

It might be interesting to consider for a moment the life of this layman, Thure Brandt, who for so long a time was bitterly opposed by the medical profession, but before whom the faculty now bows in grateful recognition of his valuable services to medicine. Thure Brandt received an education as a gymnast at the Royal Gymnastic Institute of Stockholm, where he was graduated in 1842. He remained several years in this Institute in the capacity of assistant teacher of gymnastics, and became proficient in treating various diseases by Swedish movements. In 1847, that is, five years after graduation, while a sergeant in the army, a soldier was brought to him with a complete prolapse of the rectum. There being no physician in the place, Brandt, in his endeavor to relieve the patient, employed quite an original plan of treatment and meeting with success, this became the nucleus of the present method of kinetic therapeutics.

He placed the soldier in the lithotomy position, with the pelvis somewhat raised, and by vibratory

movements and gentle upward traction upon the sigmoid flexure he succeeded in returning the bowel into the normal position. Having met with such marked success in this case, his attention was directed to a number of women whom he had previously treated at the Institute by Swedish movements, and he reasoned that prolapsed uteri or displaced organs might be restored to their normal position by this same method. He now made a careful study of anatomy and particularly of the female pelvic viscera, but it was not until the year 1861, that is fourteen years later, that a woman with a prolapsed uterus consulted him. The diagnosis of this case was not difficult. For twenty-seven years she had suffered from prolapsus and for the last three years had been obliged to carry her uterus in a bag, outside of the vagina. Fourteen days of daily treatment restored the uterus to its normal position and, what is more, it stayed there until she died, that is for twenty-three years.

The news of this almost miraculous cure spread rapidly and soon Brandt had over one hundred patients daily, most of them cases that had been given up as incurable by gynecologists. He worked daily, from morning till night and became an expert diagnostician. He loosened displaced and adherent uteri; pelvic exudates disappeared under his hands; ovaries that had been imbedded in pelvic masses were freed; enlarged tubes were reduced to their normal size. To this pelvic massage he joined the Swedish movements originated by Professor Ling and having, as he thought, well systematized his treatment, he published a brochure in 1864. Most of the Scandinavian physicians considered Brandt as a quack, and either refused to read a pamphlet on a new treatment in gynecology by a layman, or after reading it had no faith in the wonderful cures reported.

Following the advice of friends Brandt published, four years later, another brochure and this time in French. The translation was very imperfect; the medical terms chosen were those of the sixteenth century; a number of certificates of complete cure, given by the patients themselves, were added; all this would have been sufficient to condemn his work, but *an comble du ridicule*, he put his military honors on the title page. A Major of the Swedish Army, Chevalier of the *Ordre de l'Epée*, captain in the infantry regiment of Skaraborg, inventor of a new treatment in gynecology! Not recognized in his own country, and ridiculed in others he ceased his publications but continued in his practice and in the elaboration of his method.

In 1872 Dr. Sköldberg, of Stockholm, who was very much impressed with some remarkable cures he had witnessed, urged Brandt to settle in Stockholm and promised to assist in giving his method the sanction and publicity which it so well deserved. Sköldberg was professor of gynecology, and after having delivered to the students a lecture on Brandt's system, and having made preparations for practical demonstration, he died suddenly and left Brandt more alone than ever.

After every means of becoming reconciled with the scientific circles had failed, Brandt withdrew from publicity, determined henceforth to do all the good he could in relieving women of their suffering, and resigned that his method should die with him. His work remained obscure until 1885—he had now reached the age of 67, when by a sudden turn of good luck his method became recognized. The way it happened was thus:

A rich Swedish merchant whose wife and daughter had been cured by Brandt of serious uterine disease, was anxious to have the treatment known outside of its limited circle. While stopping in Vienna he tried to interest in it a young and promising physician, Dr. Profanter, and induced him to visit Stockholm in order to see Brandt and study his method. At first a skeptic, he soon was converted into an enthusiastic believer and published several articles in favor of Brandt's method. The result was, that Germany's curiosity became aroused. The following year 1886, Brandt received an invitation (to come) to Jena in order to demonstrate his method in Schultze's clinic on sixteen well selected cases. A number of German gynecologists were present and all were much impressed by the skillful manner in which Brandt arrived at his diagnoses, which were perfectly correct although he examined without the help of an anesthetic, which can not be said of the specialists. The cases were then submitted to his treatment and a strict record kept. Schultze made some drawings of the worst cases in order to facilitate comparison; one of the assistants who did not look favorably upon this novelty persecuted the patients, thermometer in hand, thinking that sooner or later he would find a rise in temperature especially in the subacute exudates. These sixteen cases were published by Schultze in February, 1887, and he remarks that this new treatment is most valuable in affections of the female pelvis, and that he firmly believes that it is most efficacious in loosening old chronic parametritic adhesions and returning the uterus into its normal position.

Shortly after the publication of this article, seventy physicians not only from all parts of Germany, but also from Austria, Switzerland, Italy and England went up to Stockholm to become pupils of Thure Brandt, and soon after the gynecologic literature was overflowing with articles on this new treatment.

Most writers after eulogizing the remarkable results witnessed, make the assertion that practical demonstration alone can teach a method so full of complicated manipulations—that it can not be learned from books, no matter how elaborate the explanations be; and then immediately they proceed to give a more or less condensed description of the technique. I will not be guilty of the same inconsistency, and refer those who are interested in this treatment to Thure Brandt's book, "*Behandlung Weiblicher Geschlecht Krankheiten*," a work carefully supervised by Professor Schauta, of Vienna, or to Ziegenspeck's brochure, "*Uber Thure Brandt's Verfahren der Behandlung von Frauenleiden*," published in the *Sammlung Klinischer Vorträge*, No. 353-354, Leipzig, 1890, or to a small work in French by my friend and instructor, M. Stapfer, late Chief of the Gynecological and Obstetrical Clinic of the Faculty of Paris, who was commissioned by the Minister of Public Instruction to study this new treatment under Thure Brandt and whose work is the report of this mission, read on his return from Sweden before the Académie de Médecine, session July 26, 1992.

Mr. Stapfer is one of Thure Brandt's greatest admirers, and has given up all other practice in order to devote his whole time to kinesitherapy a name which he coined. He is in charge of the outdoor de-

partment of the Baudelocque Hospital, and I was fortunate enough to receive an appointment as his assistant and was enabled to work under his instruction and supervision.

What is meant by Kinetic Therapeutics?—It is the art of healing functional disturbances and organic diseases of women, by acting upon the genital organs and their circulation, by direct and indirect movements. The object is to bring about a healthier state of the circulation, lymphatic and sanguineous; to set free the various structures of the genital tract; to reëstablish their anatomic and physiologic integrity—without cutting operations, without any surgical appliances, without medication, by manual skill alone.

What are the indications for Kinetic Therapeutics?—All functional disturbances such as amenorrhea, dysmenorrhea, menorrhagia, displacements of the uterus and its adnexæ with or without adhesions; peri- or parametritic exudates of sanguineous or lymphatic origin; chronic and subacute inflammation of the uterine parenchyma with its consequences—leucorrhea, hemorrhages, fungosities, ulcerations, oöphoritis, salpingitis—in short, nearly all the gynecologic miseries that fall to the lot of womankind.

What are the contra-indications?—Acute inflammation. Pus from any cause. Malignant neoplasms; the two latter points have to be taken in their broadest meaning—including syphilis, gonorrhea, tuberculosis, actinomycosis, diphtheria, etc., cancer and sarcoma.

Treatment.—The rules of treatment as observed at the Baudelocque Hospital are, daily treatment,—any prolonged interruption is considered objectionable. The menstrual function does not only *not* interfere, but is considered the best time to work for loosening adhesions. Rectum and bladder must be empty. The patients are assembled in a very large room which serves as waiting and treatment room both; the advantage of this is obvious, and while awaiting their turn they watch the physicians going through the different movements with the other patients, thus having an object lesson which alone serves to teach the sometimes very complicated movements which precede and follow, and thus form part of each treatment. Several couches are in the center of the room and M. Stapfer and his assistants hard at work. The treatment couches are fourteen inches high; the patient lies with her thorax slightly raised, her knees drawn up; the operator sits to the left on a stool on a level with the couch; his left index finger in the vagina or rectum as is usually done in virgins and the right hand on the abdomen. The outer hand does all the work while the left index finger does not move but only acts as a support. The duration of treatment is from ten to fifteen minutes, except in cases of chronic exudates, half an hour to forty minutes.

Strict antiseptic precautions are taken. The hands are disinfected with solutions of bichlorid of biniodid, the latter being more in vogue in the Baudelocque Hospital. Glycerin is always added to these solutions. To anoint the index finger it is not simply dipped into some oily substance, but the right index rubs it thoroughly into the left and far above the metacarpo-phalangeal joint.

The treatment proper consists of three different kinds of movements; vibrations, circular friction and rectal effleurage or stroking. Analgesic treatment always precedes the other, as a diagnosis can only be made when the tenderness has disappeared. This usually is the case after three to five days.

Chronic constipation, this never-failing symptom of retrodeviations is cured in a few days.

The gymnastic exercises originated by Ling and taken up by Brandt as part of the treatment are divided into three classes:

1. Those which deplete the pelvis.
2. Those which increase the afflux of blood.
3. Those which strengthen the muscles of the pelvic floor.

Time is too short to go into the details of the technique, and it would be a hopeless task to attempt giving a clear idea of it without illustrations or practical demonstration. Brandt does not consider his treatment complete without these Swedish movements. The Germans, in trying to improve upon Brandt's method, have done away with the gymnastic exercises on the ground that they take up too much time. The French school advocates them most highly and considers the movements a most valuable adjuvant, never to be omitted; in fact, a great many cases, especially those of amenorrhea and menorrhagia are treated and cured by exercises alone and without pelvic massage. M. Stapfer asserts that the Germans make a great mistake in discarding these muscular exercises, and he made this the subject of a paper read before the International Medical Congress at Rome, April, 1894.

Kinetic therapeutics, on account of the wonderful results obtained, would run a great risk of becoming the prey of quacks and advertising industrial gynecologists, were it not for the fact that a thorough knowledge of the anatomy of the pelvis is required. It is based upon truly scientific principles and herein lies its safeguard. Practiced by unskilled hands it may do a great deal of harm and may even prove fatal in cases of pyosalpinx. It is not sufficient to possess a good general knowledge of the female pelvis, its large nerve trunks and blood vessels, but a thorough study of the lymphatic circulation and of the sympathetic nervous system becomes a necessity. In dealing with an exudate, the operator endeavors to stimulate the lymphatics and promote absorption by working in the direction of the lymph channels. It has to be borne in mind that the lymphatics of the uterus, tubes and ovaries are directed outward, following the course of the utero-ovarian arteries and terminate in the lumbar glands. Should the exudate be near the cervix it has to be remembered that these lymphatics take the direction of the uterine artery and end in the pelvic glands.

The researches of Glax and Klemensiewicz have shown that in the center of an inflamed area, in consequence of the increased transudation, the lymph spaces become overfilled and the outflow is deficient, owing to the compression of the vasa efferentia. The operator therefore has to begin by making room in the lymphatics and by working at the periphery and gradually advancing toward the center, and as soon as the lymph stream begins to circulate he works in the opposite direction, that is, from the center to the periphery, following the direction of the lymphatics. Experiments of Lassar and Mosengeil have proved to the fullest satisfaction that kinetic therapeutics increases the rapidity of the lymph stream.

Lassar (in *Virchow's Archiv.*, vol. LXIX, p. 153). This experimenter by chemic and thermal irritation

produced an inflammation in the paw of a dog, and then introduced a canula into the peripheral end of a severed lymphatic and a few drops of lymph flowed out slowly. But as soon as massage was practiced the lymph was seen to spurt out.

Mosengeil's classical experiment described in the *Arch. f. Klin. Chir.*, vol. XIX, p. 428, shows conclusively the value of massage. He injected animal charcoal into the joints of rabbits and considerable swelling took place. One joint thus treated was submitted to massage; the other was left alone. In the first one the swelling disappeared; the latter remained enlarged. On autopsy the swollen joint revealed the black substance still *in situ*, while the masséed articulation was free from it. This experiment not only proves the usefulness of kinetic therapeutics, but shows the danger of such a method applied where the quality of the exudate is of an infectious nature.

The nerve supply of the lymphatics is derived from the sympathetic nervous system. This latter is of the utmost importance to the kinetic therapeutist. I could not help wondering how little is said in the standard text-books of gynecology on the rôle played by the sympathetic nervous system; in fact most of the books on anatomy treat this system with marked indifference. In my opinion kinetic therapeutics is directed chiefly to the lymphatic and sympathetic systems and it is to be hoped that its practice will cause some study in this rather unexplored field, and throw some light on the oftentimes obscure pathology and symptomatology of uterine disease. If we take a case of analgesic treatment we will soon find that we come across certain spots that are particularly painful and in making a careful study of the anatomic relations we can always trace these "points douloureux" to sympathetic ganglia. There is for instance, at the junction of the uterus and Douglas' fold, to the right and left of the posterior vault of the vagina, a most tender point, which when slightly touched makes the patient wince and here we find the uterine ganglia. Occasionally the sacral nerves can be traced back to their foramina at the level of which four sacral ganglia are found, which are united to each other and send numerous branches to the hypogastric plexus. This whole region is in certain affections highly sensitive and causes the intense reflex symptoms so often noticed in uterine disease.

The sympathetic nervous system holds a place far more important than is usually attributed to it, and even a superficial glance at the anatomy of the pelvis will reveal the fact that the pelvic viscera derive their mean nerve supply from the sympathetic system. At times this nervous system becomes one of the most powerful factors in the human anatomy, namely in causing the expulsion of the fetus at term. Obstetricians consider the center of parturition to be situated in the medulla oblongata. How does the impulse reach the uterus? Partly by way of the spinal cord through the sacral nerves, partly through central filaments of the sympathetic nervous system, attaining its maximum of intensity in the plexus uterinus magnus, situated at the level of the bifurcation of the aorta. Four centimeters below, this plexus divides into the two hypogastrics, and these, together with numerous branches from the lower lumbar and superior sacral ganglia, form two divisions; the smaller one supplying and surrounding the rectum, and the larger one, after uniting with the sacral nerves, forms the cervical ganglion, which supplies the whole uterus and especially the cervix.

Now let us travel backward this same road, and many of the obscure reflex symptoms can be explained. If we have to deal with chronic exudates, with the unavoidable pressure effects upon the nervous tissue in the pelvis, the impulse will travel upward to the medulla and on its way produce the various reflex symptoms which are called by Freund cerebro-spinal. We will observe bearing down pains, sensation of fullness in the pelvis, backache, colicky pains, chronic constipation, nervous dyspepsia, vomiting, asthma, pain in the cardiac region, palpitation, globus hystericus, migraine, amblyopia, cataleptic and even epileptic attacks.

Kinetic therapeutics is a valuable auxiliary in curing displacements of the uterus. When might we speak of an organ as being displaced, whose ligaments permit movement in every direction so that there is no one normal position a departure from which would constitute a pathologic displacement? Physiologic displacement is an essential feature of a normal uterus and as soon as it is in the least interfered with we know that something is wrong. No subject in anatomy has perhaps caused such wide differences of opinion as the so-called normal position of the uterus. Great anatomists as Luschka, Braune, Cruveilhier and Henle consider it normal with the fundus in the hollow of the sacrum and according to Schultze, the long axis of the uterus is nearly parallel to the horizon. More recent investigators speak of a normal anteflexion, but who can guarantee that they are right? Post-mortem we see healthy uteri nearly always in retroversion and during life the gynecologist does not often encounter a healthy organ.

We know to-day that deviation of the uterus in itself does not call for treatment, and every gynecologist has seen cases of marked displacement without a single symptom. Some authors have gone so far as to deny that any pathogenic importance whatever attaches to simple displacements without adhesions. It is certain that adhesions give at once a different aspect to the deviation and according to the degree of mobility destroyed we have to deal with the different reflex symptoms, from the multiple neuralgiæ to chorea (Schröder) and hystero-epilepsy (Sielski). It is the province of kinetic therapeutics to remove the *cause* of displacements.

Exudates are treated as described above.

Adhesions of parametritic origin are disintegrated and worked back into the circulation.

Shortened ligaments are stretched and return to their normal length in a remarkably short time. If the shortening be of a peritoneal nature the operator must be satisfied if adhesions are separated and the uterus regains a relative degree of mobility; the peritoneum if once contracted does not regain its normal elasticity. When we come to treat relaxed ligaments we encounter more difficulty and we have to take into consideration that they consist merely of connective tissue and scanty muscular fibers. These latter not being sufficiently numerous to restore the elasticity of the ligaments. Some enthusiasts of Brandt's method claim to have shortened these supports. The only way in which I could account for their success, which does not otherwise coincide with physiologic laws would be that by mechanical irritation they have produced an inflammation which

naturally resulted in contraction of the ligaments.

I will say one word on the treatment of chronic constipation, although it does not, strictly speaking, belong to pelvic massage. It is perhaps one of the most valuable presents we have received from the hands of Thure Brandt. I have seen cases of habitual constipation where three cathartic pills, together with 3 ss. ol. ric. and an enema were the daily order of things, and such cases have been cured in a few days only by kinetic therapeutics.

The reason of these remarkable results is easily understood. Once more the sympathetic nervous system has to be brought into the foreground. We all know that the physiologic activity of the alimentary canal depends on the proper innervation and circulation. Virchow has shown that in innervation disturbances, in consequence of which the muscular fibers of blood vessels lose their energy and the elastic fibers become relaxed, thus interfering with the physiologic function of the intestine, kinetic treatment is eminently satisfactory in strengthening the muscles of the abdomen, producing peristalsis and in the mechanical removal of skybala from the colon. Another most favorable result is the beneficial effect by reflex action upon the stomach.

Subinvolution of the uterus is cured by this method in so short a time that one can but wonder at it. It is not rare to see cases of enormously enlarged uteri reduced to their normal size in a few days.

Cases of metritis and endometritis respond to treatment in a relatively short time; but should the latter be due to fungosities, curetting would be the more rational treatment.

It is remarkable how quickly all the subjective symptoms disappear even in the most severe cases, while the objective symptoms remain behind, to serve as a guide for the continuation of the treatment, long after the patients consider themselves cured. Kinetic therapeutics is no longer considered a novelty, but holds a high place in the estimation of the leading gynecologists. The most prominent specialists abroad have given it a fair trial and acknowledge that not only did the treatment fully come up to their expectation, but that it rendered unnecessary in many instances surgical interference, particularly such operations as Battey's. If kinetic therapeutics had done nothing more than to give the death blow to Battey's operation this fact alone would suffice to give this method a foremost rank in gynecology.

Alexander's operation for shortening the round ligaments, with its modifications by Adams and Alquié has a dangerous rival in kinetic therapeutics. Most of the disciples of Thure Brandt are of the opinion that ventro-fixation has had its day and will be substituted by the more rational kinetic therapeutics. Ventro-fixation as recommended by Koeberlé, Olshausen, Lawson Tait, Kelley, Sänger and Leopold is at its best a dangerous operation and by no means justified by its results. Laparotomy, the forcible breaking loose of adhesions and stitching of the uterus to the abdominal parietes is a serious undertaking, especially if we think that after all it is only the substitution of an anterior for a posterior fixation and oftentimes a double fixation. The dusting of aristol, dermatol or idoform over the loosened adhesions, or the application of sterilized gauze, or even gold leaf, has proved inadequate.

The cure of prolapsus uteri is, although wonderful in the hands of Brandt, not universally successful if undertaken by his followers, and Winckel made the statement that colporrhaphy will, together with Brandt's system, be in the future the treatment for such indications. It will easily be seen that where the pelvic floor gives no support whatever, Brandt's treatment alone can not hold the uterus up. In these cases the levator muscle is found to be severed and operations such as devised by Freund, Martin and Winckel will be found beneficial, as they bring about a union of the muscular fibers of the levator and the vaginal wall. Brandt's per cent. of cure of prolapsus is between 70 to 80 per cent. and it is doubtful whether surgical operators have the same good result. There are cases on record where five and more operations did not prevent the descent of the organ and Le Fort's operation for complete closure of the vagina had to be resorted to.

After having taken up so much time in trying to bring out the advantages of kinetic therapeutics, I have to point out its disadvantages. All that can be said against it, even by Brandt's adversaries, is its troublesomeness, the difficulty of becoming familiar with it—a trip to Sweden or Germany to study with one of Brandt's disciples being indispensable—and last, not least, the long duration of the treatment extending in chronic cases over several months.

Brandt teaches no longer, having arrived at the venerable age of 77 years. Gynecologists from all parts of the civilized world are constantly applying for the privilege of studying under his direction; but within the last year or two he has felt it to be incumbent upon him to transfer the duties of teaching his method to his disciples. After many years of bitter disappointment, harsh criticism and antagonism he now has the satisfaction of seeing his labors appreciated, his method adopted by the scientific world and of having his name handed down to history as one of the great philanthropists of his day.

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1730 H Street N. W.

SUPRA-PUBIC CYSTOTOMY FOR CALCULUS IN THE BLADDER.

TRENDELENBURG'S TRANSVERSE INCISION—TRANSVERSE DIVISION OF THE RECTI AND PYRAMIDALIS MUSCLES—INCISION OF THE BLADDER WITHOUT INFLATION OF THE RECTUM OR INJECTION OF THE BLADDER.

Read before the St. Louis Medical Society, Dec. 22, 1894.

BY A. H. MEISENBACH, M.D.
PROFESSOR OF SURGERY IN THE MARION-SIMS COLLEGE OF MEDICINE, ST. LOUIS, MO.

The object of this short paper is to bring to your notice an operation, which though described in several works on surgery in the German[1] is not mentioned (so far as I have been able to investigate) in any English or American text-book on surgery, with the exception of the English translation of Kocher's "Operative Surgery" recently published. I do not believe that the technique of this operation as practiced by Trendelenburg, Tillman, Kocher and other

Continental surgeons is generally known or practiced in this country. The operation I have reference to is the operation of supra-pubic cystotomy, by a transverse incision through the skin and abdominal muscles, without previous inflation of the rectum or injection of the bladder. This operation is known as Trendelenburg's method of supra-pubic cystotomy (*sectio alta*) by means of the transverse incision.

This method was first suggested by Günther and carried out afterward by Bruns-Lotzbeck. To Trendelenburg, is due the credit of bringing the operation to general notice in Germany, and perfecting the technique, such as is now practiced by himself, Tillman, Kocher and others. The technique of this operation renders it unnecessary that the rectum and bladder be previously distended, which in the *sectio alta* by means of the median vertical incision is of importance, especially the injection with fluids or air of the bladder. The majority of surgeons have now discarded the inflation of the rectum, but still use some method of distending the bladder, either by fluids or air.

As you are all aware, the object in inflating the rectum or distending the bladder, is to bring the viscus out from behind the pubes, thus rendering it more accessible especially in the adult; also to increase the dimensions of the pre-vesical space by pushing up the peritoneum. It is well known through experience, that inflation of the rectum is at the best unsatisfactory, and has therefore been practically discarded. That distension of the bladder is not always without danger, is also well known; especially in persons of advanced years in whom the bladder walls are friable.

It is true that the Trendelenburg position (elevation of the pelvis), increases the dimensions of the pre-vesical space, but the median vertical incision in this position (with distension of the bladder) does not give as free access to the organ as the transverse incision. This is due to the form of the wound as produced by the median vertical incision. This wound is elliptical when pulled asunder by retractors, with the points of the ellipse at the pubes, and toward the umbilicus, so that the narrowest point of the wound is at the pubes just where the greatest amount of space is wanted for free manipulation of the deeper parts. In the transverse incision the wound is triangular or lozenge shaped, with the base or widest part right at the pubes.

TECHNIQUE.

The patient is carefully prepared; pubes shaved, bowels emptied thoroughly. He is then placed in the Trendelenburg position, the pelvis as high as necessary, so as to allow the abdominal organs to gravitate toward the diaphragm. The incision through the skin is transverse over the upper margin of the pubes, in a slightly curved form, convexity of cut over the pubic bone; it is best to carry the convexity of the incision about one and one-half centimeters onto the pubes; by doing this the insertion of the recti can be more easily severed, very close to the bone. The length of the incision extends from over the region of one inguinal canal to the other on the opposite side. The cut is carried through skin and superficial fascia, exposing the pubes and the insertion of the recti muscles. Two Volkmann hooks or retractors are now placed in the skin wound, one pulling upward toward the penis, and the other downward toward the umbilicus. A few veins may need ligation. A catheter or sound of full curve is now introduced into the bladder and controlled by an assistant, or it may have been introduced before the skin incision is made. The skin wound being held asunder by the retractors or hooks, the insertions of the recti muscles are fully exposed. Their insertions are cut transversely across, keeping the edge of the knife well against the upper border of the pubes. This can be facilitated by pressure of the index fingers of the left hand on the muscles, thereby putting the tendons on the stretch; in this manner both recti may be partially or wholly severed from their insertion as well as the pyramidalis muscles, as the operator may see fit.

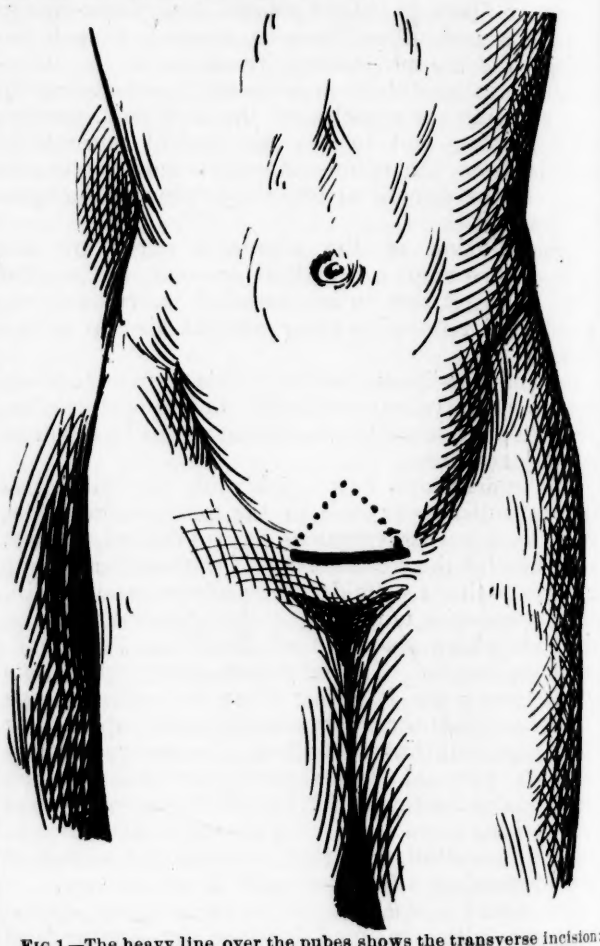


FIG 1.—The heavy line over the pubes shows the transverse incision: dotted lines the form of the wound when held apart by retractors.

The division of the muscles brings into view the pre-vesical space. A hook or retractor is now hooked into the umbilical end of the wound (the instrument must be blunt so as to run no danger of wounding the peritoneum) and traction made downward. Two more hooks are inserted into the pubic angles of the wounds and traction made to the respective sides. This gives us a large triangular wound with the base in the most favorable position for manipulation at the pubes. At the bottom of this wound we find the pre-vesical fat, veins, the peritoneum and bladder. In the adult the lower fold of the peritoneum may dip down behind the pubes, depending on the size and disposition of the fundus of the bladder. By means of rat tooth forceps or a blunt dissector or knife-handle the fat is separated; by a little care the

[1] Koenig, Kocher, Tillman.

veins need not be injured, and no bleeding need occur by this manner of blunt dissection. The anterior wall of the bladder is exposed and is recognized by its pinkish color. The anterior wall of the bladder should be well exposed upward and downward. If the operator works skillfully, the peritoneum may not become visible during the operation. It is well at the beginning of the separation of the fat to work well down behind the pubes, for then there is no danger of encountering the peritoneum, and we can, after the bladder wall has been exposed, readily work it upward, along with the veins and pre-vesical fat. At this stage of the work the catheter comes in for its part in the technique; the assistant who has it in charge firmly depresses the ends, thus carrying the point against the anterior wall of the bladder. It can be carried higher into the fundus, or lower, as the operator may desire, and by this means he can clearly outline the extent of the bladder.

The anterior surface of the bladder having been sufficiently exposed, the catheter lifts the wall well up into the wound at any point the operator may determine. By means of a sharp hook, or better, by means of a loop of silk passed through the muscularis, the bladder is fixed; we may, if we choose, put in two loops of silk; the one near the fundus, the other lower down.

The organ is well drawn upward and the tip of the catheter is used as a guide to cut down upon; with a sharp narrow pointed knife we cut down beside the tip of the catheter into the bladder. It is well to begin the incision into the bladder near the fundus and extend the cut downward, so that one or two fingers can be introduced into the interior of the bladder. A gush of urine usually follows the opening of the organ. The interior can now be examined by the fingers, or inspected by means of an electric light introduced into the cavity. If the operation be done for calculus, it is now extracted, or any other procedure that the particular case may require. After the operation is finished, the bladder is irrigated with a 3 per cent. boracic solution. A soft rubber T-drainage tube is now inserted into the cavity of the bladder and the other end passes out of the skin wound. Into the wound and around the tube iodoform gauze is packed. Each outer angle of the wound may be brought together by one or two sutures so as to lessen the size. A suture is passed through the skin and drainage tube, so as to retain it in its place; over this gauze and cotton.

The patient is put to bed and as soon as narcosis passes off is instructed to lie on either side, right or left, so as to admit of free drainage. The tube is left in the bladder one to two weeks. The gauze packing is removed as often as is necessary. The patient is allowed to sit in an upright position as soon as possible after three to four days.

Case.—On December 16, Mr. K. S., aged 70, residence Lebanon, Ill., was referred to me by Mr. H., a medical student of the Marion-Sims College. The patient for a year past had suffered from frequent urination. He had been treated by three or four physicians without relief. He was sent to me under the supposition that he was suffering from an enlarged prostate. Patient stated that his appetite was fairly good, he slept well, and did not have to get up very often to urinate, but during the daytime had to micturate very often, and that there was considerable pain immediately after urination. This pain he located over the pubes. Examination of the rectum revealed that the prostate was not enlarged, and could hardly be responsible for his symptoms. I introduced a sound into the bladder and it was hardly in the bladder when I came into contact with a stone located on the right side. The introduction of the sound caused him much pain, and he was attacked by a trembling spell, so that I had to desist from further investigation.

I saw him again the next day; he had a slight rise in temperature 100 degrees, and felt unwell. While holding the thermometer in his mouth he had a slight syncope. I advised an operation, and that he should go to a hospital. He agreed to operation and entered the Rebekah Hospital the following day. Urine showed slight trace of albumen.

Operation.—Wednesday morning, December 19, the operation of supra-pubic cystotomy was done. The patient had received two good doses of whisky; the one an hour before, the second a half hour before the operation. A hypodermic of 1-6 gr. of morphin was given along with the second dose of whisky. The whisky and morphin were given so as to avoid the necessity of giving much chloroform. The patient was placed in the Trendelenburg position on Edebohl's table. A silver catheter was introduced into the bladder and held by an assistant. I had taken the precaution to arrange a stop cock on my catheter, in such a manner that the nozzle of a syringe could be attached, so that I could inject the bladder should I find any difficulty in reaching the same, it not being injected. I made a transverse incision from one inguinal canal to the other; the line of incision was slightly curved, with convexity over the pubes, and carried about one and one-half centimeters onto the pubes. The cut was curved down through skin, fat and fascia onto the recti muscles. There was no bleeding. The recti and pyramidalis were now cut through, keeping the edge of the knife on the pubes. A retractor was placed in the umbilical end of the wound, drawing downward, one also into the pubic angle of the wound, drawing to the respective sides. The pre-vesical (cavum Retzii) space was now freely exposed, especially well the parts behind the pubes; with a mouse tooth forceps and a blunt dissector I cleared away the pre-vesical fat and veins over the anterior wall of the bladder.

I had my assistant press the catheter well up against the pubes as low down as possible, with the point of the catheter as a guide. I was quite safe in my manipulation, and sure that I was below the lower fold of the peritoneum. As soon as I reached the bladder, which could be easily noted by its pink color, I cleared the fat well off from the anterior wall as far as the fundus. The peritoneum did not come into sight, was covered by fat and pushed along with it out of the way. Into the anterior wall of the bladder near the fundus, I inserted a loop of silk, passing it through the muscular coats. This loop I used to fix the bladder previous to the incision. I now had my assistant crowd the point of the catheter well against the anterior wall of the bladder near the fundus. I found that it was an easy matter in this case to penetrate the bladder wall with the catheter tip. I did this, and then used the catheter as a guide, alongside of which I inserted a narrow pointed bistoury and enlarged the wound downward so that I could introduce two fingers into the bladder. The catheter was now withdrawn. I could readily feel a large, oval, flattened calculus in the right segment of the bladder. Passing a stone forceps in alongside of my fingers, I readily seized it. I found that the bladder wound was quite small for the stone to pass through; by means of a rotary motion I pushed it out of the bladder through the wound without enlarging the same.[2]

The bladder was thoroughly washed out with a 3 per cent. boric acid solution. A soft rubber T-drainage tube was inserted in the bladder, the other end passing through the skin wound. I fastened the tube into the skin wound by a single suture through skin and tube. The depth of the wound around tube was packed with iodoform gauze, the ends left in the upper part. The outer angles were closed, each by two sutures. Into the top of the protruding drainage tube, I inserted a T-tube of tin ore, over each arm of which a rubber tube was passed. The rubber tube extended over the abdomen of the patient, well over each side. The dressings were applied so as to have the ends of these tubes protrude. The patient by this arrangement can lie on either side and the urine is carried by means of these tubes into a urinal or dressing, and thus the wound is protected, in a measure at least, from the effect of the escaping urine.

The operation occupied about half an hour. I could have done it in about twenty minutes, but a

[2] Mulberry calculus, 1¾ inches long, 1½ inches wide; weight 1 oz., 2 drachms.

little time was lost on account of a hitch on the part of the assistants. It can easily be accomplished in a careful manner in fifteen to twenty minutes time. The patient reacted well from the operation. Not a tablespoonful of blood was lost. Twenty-four hours after the operation the temperature was 100, which, however, in the next twenty-four hours fell to normal.

On the third day the dressings were changed and the packing removed. Tube left undisturbed. Patient is doing well; rests and has no pain; urine escapes through tubes as above described.[3]

Remarks.—The experience gained by an operation by a new method in a single case can not usually be taken as a criterion of the value of a method, unless its merit has been established by other operators. Its decided advantage over the median vertical incision was, however, clearly demonstrated and especially the ease with which the pre-vesical space is laid open, and the lessened danger of wounding the peritoneum. This is easily understood when we bear in mind that in the transverse incision, we cut parallel with the lowest fold of the peritoneum, as it is reflected over the fundus of the bladder and in a direction that is oblique to it, or in other words away from it.

In the median vertical incision the opposite obtains, as here we cut directly at right angles to the peritoneum, and directly over it in the umbilical end of the wound.

Based on the experience of others, and my own in the case reported, I would offer the following conclusions:

1. That the transverse incision is more easily executed from a technical standpoint.
2. That it affords more space in which to work in the depths of the wound than the median incision, and hence superior for any exploration of the bladder, for whatever condition.
3. That there is less liability to injury of the peritoneum, because the knife is used parallel with and on a level below its lowest fold.
4. That it is unnecessary to inflate the rectum.
5. That it is unnecessary to inject the bladder, and consequently, the risk of injury to the organ is avoided, which in the aged is an element that should always be considered.
6. That the catheter in the bladder is a safe guide to the location of the fundus and anterior wall.
7. That with the catheter as a guide, the bladder can be incised with ease and facility.

A PUNCTURE WITH A BONE OF A LIVING FISH IN THE WEST INDIES, FOLLOWED BY LEPROSY IN A CAUCASIAN SUBJECT.[1]

BY ALBERT S. ASHMEAD, M.D.
LATE FOREIGN MEDICAL DIRECTOR TOKIO HOSPITAL, JAPAN.
NEW YORK.

I have had an opportunity of examining a case of leprosy in this city, which has been first seen by a medical friend of mine, who knowing that this disease was a subject in which I had always been deeply interested since my sojourn in Japan and that I had published a number of articles about it in the medical papers, has been kind enough to let me study the case.

C. G., aged 35, but looking 50, of more than average intelligence, of intemperate habit, born in Germany, of German ancestors, came when 2½ years old from Germany to the port of New York; has been married twenty years; has five living children all healthy, one a married daughter, who has a child of 7 months. He says he was healthy until six years ago. The following is his history: He lived in New York until he was 18, when he went to Brazil, as an engineer's storekeeper; the trip occupied two months. He left there and went to Aspinwall as waiter and chief cook on a ship belonging to the Pacific Mail. He remained in this service two and one-half years when he changed to the Savannah line, as cook, and remained in that service four years. Then he was employed by the Ward line running between New York and Havana, Matanzas, Tampa, Tuxpani and Vera Cruz. He was with that line one year. He then worked six months on a steamer running to Santiago, Cuba, Nassau, Cienfuegos. He went then to the Clyde line, running between New York, Charleston and Jacksonville, where he remained one and a half years. After that he entered the service of the Red "D" line, running between New York and Curacao, Puerto Cabello and La Guayra. During all this service his family lived in New York, and his employment on his trips was always that of cook, storekeeper or waiter.

Six years ago he was on board a steamer running between Tampa, Key West and Havana, on which he had been employed during the preceding four months. Just as he was leaving Havana, from which the run to Key West is only a night's trip, while cleaning a red snapper, a fish which among sailors has the reputation of possessing a poisonous fin just behind the gills, he punctured with the bone of that fin the tip of the thumb of his right hand, through to the bone. The next morning he felt no pain in his hand, but the arm was beginning to swell; it continued to swell for some days, then the swelling subsided, the whole process lasted a week. At the climax it was about three times its natural size, the swelling extending to the shoulder. The man was under the treatment of the U. S. Marine-Hospital surgeon at Key West, and gradually recovered. Immediately afterward an eruption appeared on the front of the chest, the head and face. Watery vesicles appeared, which broke and formed huge scabs.[2]

Dr. Daniel M. Burgess, U. S. Marine-Hospital Inspector at Havana, treated him for this, but he did not define the case as having any relation to leprosy. When these eruptions were cured, after some months, there remained red blotches which crossed his nose and cheeks, and appeared symmetrical on his forehead over the eyebrows. Nothing appeared on the chest, where the eruption had been localized. These red blotches gradually thickened, hardened and became nodulated. He first noticed this on the sides of the nose. None of the blotches had at that time shown on his ears. This condition continued increasing; his ears became tuberculated, and six months ago Dr. Burgess of Havana, first declared the case to be one of leprosy. Soon after the first outbreak of blotches,

[3] February 20. Wound closed. Urine passing per viam naturalam.

[1] This case has not been reported before. It has been in charge of the physician who now attends it, for two years. His diagnosis of leprosy was not made until three months ago, when another physician at the Presbyterian Hospital, N. Y., discovered the lepræ bacilli. The first diagnosis of leprosy, as was afterward learned, was made in Havana six months ago, by Dr. Burgess. My own diagnosis of leprosy is the third in the case.

[2] A vesicular or porrigonous eruption is, in China and Japan, frequently the initial lesion of leprosy.

the patient had discovered a numbness in the ulnar side of his forearms; he had no numbness in the feet until two years ago, at a time when my medical friend treated him for pleurisy and pneumonia. The hardness and hypertrophy about the wings of his nose, cheeks, eyebrows and ears was gradual; it began three years ago.

Present Condition.—February 17, nose hypertrophied, three times its natural size, tuberculated, nodulated; both ears hugely hypertrophied, tuberculated and pendulous; the whole forehead hypertrophied and nodulated; cheeks, upper and lower lips, fingers of both hands hypertrophied and nodulated; the back of both forearms, tuberculated. Color of skin, face, neck, hands and forearms, a deep tawny hue. The tongue can not be bent from right to left; it is bent over to the right side. He has the well-known leonine face expressive of leprosy. The patient has a feeling of stretched numbness in the ulnar side of his forearms. The toes of both feet have been numb these two or three years. Ulceration on the tips of the three larger toes of both feet. He has just returned from a trip to Venezuela, which lasted twenty-five days, and is now laid up on account of the sores on his feet. He has no history of any disease, except chagres fever, seven years ago, and of pneumonia two years ago. I saw four generations in his house; his mother apparently in good health, his married daughter and his two sons, aged 5 and 7 years, and the married daughter's infant son seven months old. The married daughter is of a strikingly pearly white complexion. Both sons present a similar complexion. The infant grandson is in robust health. There is no history of leprosy in the family in any preceding generation. I cut one of the tubers from the third finger of his left hand, and from sections made with the microtome, stained with carbol fuchsin and methylene gentian violet, found lepræ bacilli in abundance, spherical accumulations of bacilli or bacilli heaps, the so-called "leprosy cells."

Here we have, then, a man who had been exposed to the influences of leprous countries for at least eleven years; who received a wound from a fish caught in what we may call leprous waters; the wound is peculiar in that it was anesthetic at the start; when it healed, the consequent swelling abated; there supervened a peculiar vesical eruption, which on breaking forms huge scabs. When he recovers from this, there appears with complete evidence the erythema or the plaques of leprosy, followed by hypertrophy and nodulation, these also characteristic of leprosy. From this moment, beyond doubt, the case was manifestly leprosy, although the truth had not been recognized in the earlier stages.

Now these questions arise:

Did the patient have leprosy germs latent in his system at the time of his accident?

Was he inoculated with leprosy at that time?

If there were such latent germs, would they have remained latent had not such an accident occurred?

Is it necessary, when leprosy germs are latent in the body, that an exciting cause intervene to develop them into activity?

Is it the case in leprosy as in tuberculosis, that germs may remain latent always?

I must remark here that everything seems to show that there are fewer chances of evident inoculation of leprosy germs than of tubercular germs, and that therefore there is greater probability of latency of leprosy than of tuberculosis.

There has always been a suspicion, for obvious reasons, that fish has something to do with leprosy, and I believe myself in intermediary marine host function. Can the case in hand be considered as corroborative of this opinion? [3]

Hansen himself says that leprosy if not contagious, can at least be inoculated. The patient in question is living in fond relations with four generations, in a tenement house containing twenty families, in a non-leprous country. He is a New York man, having come here at 2½ years of age; and therefore not to be shipped home, as might a Chinaman. What is our duty to the community, to the inmates of the tenement, to the man's family, and to himself, under these conditions? If he is reported to the board of health he has only to expect the utmost rigors of charity; he will be put in a tent on some island, and condemned to perfect isolation; his family will suffer by the report.

If this patient is not reported and isolated, according to Hansen's belief, sooner or later, some member or members of his family may become inoculated. (His married daughter and his two boys have now the peculiar pallor which, in the East, is considered as premonitory of the disease.) If they do become inoculated with leper germs, or if they are already inoculated with them, and yet escape the outbreak, may we not suppose that being in a non-leprous country, and no incident like that which originated the disease in our patient occurring, the germs will remain forever latent? My own belief as to the contagiousness or the inoculability of leprosy is that the measure of danger is in the individual, the race and place of residence. There is much more danger of leprosy here in New York from the cohabitation and breeding of a leper with a healthy woman, (a child was born to our patient's wife one year after his outbreak of leprosy) than from contact or any such relationship. The Oriental law is that a leper shall breed with his own generation of leprosy; a leper belonging, let us say, to the second generation, that is being the son of a man or woman in whom the disease first appeared, will be allowed to marry the daughter of a man or woman in whom the disease first appeared, and so for the other generations. In this way the susceptibility to leprosy becomes extinct in the fourth generation and the leper germs will always remain latent afterward in that family.

A CASE OF GUMMA OF THE CEREBRUM.

Read before the Chicago Pathological Society, Dec. 10, 1894.

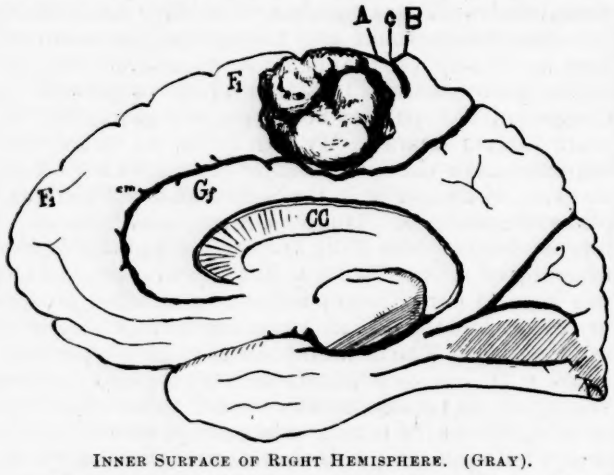
BY D. R. BROWER, M.D., AND D. D. BISHOP, M.D.
CHICAGO.

This is a case of syphiloma which is in some respects very interesting. I have no regular report of the case but will simply recite the symptoms that were present, and Dr. Bishop will show his very carefully prepared specimens.

The patient, aged 52, was brought to me by his family physician, October 23. At that time he had epileptiform attacks of the left upper extremity, the attacks beginning in the little finger and ring finger and gradually involving the hand, fore-arm and arm.

[3] Kaurin and Beaveu Rake are of opinion that there is possibly some intermediary stage, through which the bacillus passes, or some undiscovered host in whom it undergoes a further development ere it can reproduce the disease, which has so far eluded our observation.

But when the paroxysm began in the little and ring fingers the patient could, by a strong mental effort, especially when aided by his grasping something, stop the paroxysm at that point, and it was a very uncommon thing for the attack to get beyond the muscles of the fore-arm or possibly the arm. But if he failed by this effort of the will to arrest the paroxysm, then the facial muscles and afterward the lower extremity were also involved in the movement. Consciousness was perfectly maintained during all of these convulsive seizures, except the first one, which occurred while he was in Wisconsin fishing, and he fell down then in the boat. That probably was a general movement. These attacks were very frequent, fifteen or twenty occurring in the course of the day. His arteries were very much degenerated, especially the radial. I expressed the opinion that we had a localized brain tumor or a meningitis probably in the arm center of cortex. I advised him to go to the Presbyterian Hospital for observation and later on, if necessary, an operation could be made. We immediately placed him on large doses of iodid of potassium and after three or four days the convulsive seizures disappeared. He remained here until November 5, that is about two weeks. The paroxysms had entirely stopped and I sent him home, supposing he had recovered from his illness. I advised him to



INNER SURFACE OF RIGHT HEMISPHERE. (GRAY).

The portion occupied by the gumma is shaded. A, ascending frontal; F 1, superior frontal convolution; c, Rolando's fissure; c m, colloso-marginal sulcus; Gf, gyrus-fornicatus pushed downward by the growth.

continue the iodid of potassium. On November 17, twelve days after he left, his physician wrote me that there was hemiplegia of the side that had been the seat of the convulsive seizures. I at once wrote to the physician to bring him back in order that an operation might be made. He was accordingly brought back, and died four days afterward.

The seat of the tumor was not cortical, as I supposed it to be, but subcortical. It involves the paracentral lobule and extends deeply into the centrum ovale, and doubtless began there. I think there can be no doubt that it began by making pressure upon the fibers that come from the upper extremity center and gradually extended until it produced complete paralysis. The external aspect of the hemisphere is perfectly intact. When the operation was made by Dr. Senn, failing to find anything abnormal we concluded the diagnosis was wrong, and inasmuch as there was a history of an ear abscess that began fifteen or twenty years ago, with an occasional discharge, we rather jumped at the conclusion, in the operating room, that it was an abscess and not a gummata, and the brain was explored in every possible direction for pus, but it was not found. Dr. Senn then cut into the mastoid cells expecting to find a mastoid abscess, but failed. The dura mater was thickened and adherent, as though he might have had a pachymeningitis some time previously.

This case serves to illustrate again the fact that you can not locate Jacksonian epilepsy on the external aspect of the hemisphere, always, even when you have a typical Jacksonian epileptic paroxysm, for sometimes it is due to a lesion beneath the centers, involving the centrum ovale, and again, you may have an extensive abscess in the petrous portion of the temporal bone and no cerebral abscess accompany it. The location of the tumor is such that the arm center must have been irritated first and then with the extension of the tumor paralysis came on.

Dr. Bishop will give us the results of his careful pathologic and microscopic examination.

NECROPSY.

Nov. 23, 1894, by Dr. D. D. Bishop. Save for the incisions over the right mastoid and right molar regions, made for operative purposes, no abnormal conditions were found in the scalp or skull.

Dura mater: This and its falciform process were adherent over the external and internal surfaces of the right cerebral hemisphere at the motor area.

Brain and pia mater: The dura removed, a growth is seen projecting into and rising above the superior longitudinal fissure, and apparently growing from the interior of the right hemisphere. Upon removal of the brain and more careful examination the following conditions were noted: The growth projects from the internal and superior surfaces of the hemisphere, pressing aside the cortical substance. The presenting surface is elliptical, the long axis corresponding with that of the cerebrum. The surface measurements are six by five c.m. Its posterior margin is one and one-half c.m. in front of the depression marked by the junction of Rolando's fissure with the superior longitudinal fissure, while its anterior margin extends well forward into the ascending frontal and superior frontal convolutions. But very little was visible upon the superior surface of the hemisphere. The inferior margin reaches externally as far as the gyrus fornicatus.

Upon section, the growth seems to spring from the centrum ovale and is about four c.m. deep. It projects into the superior and ascending frontal convolutions and gyrus fornicatus, bulging out through the colloso-marginal sulcus. It is covered upon its unattached surface by the pia mater which is only slightly adherent, blending off at the borders of the growth into the surrounding pia mater of the unaffected brain. At no point does the pia seem to be in close relation to the growth as one would expect to find if the origin were in that structure. On the other hand, it springs out firmly from the centrum ovale, bulging out through the brain substance as before stated.

The pia mater over the convex free surface of the growth is thickened and its vessels engorged.

The interior shows a central area of white softening, about this a slightly yellowish zone, while the periphery is light gray in color and presents numerous distended vessels, some of which are distinctly

thrombosed. The mass then blends off insensibly into the deep cerebral tissue. The petrous portion of the temporal bone was necrotic and contained some inspissated pus, but there was no extension to the mastoid or other contiguous structures.

The basal vessels were apparently normal, the ventricles empty and no changes in the basal ganglion. Save for some paleness there were no changes in the thoracic nor abdominal viscera. Cultures on glycerin agar and nutrient gelatin from the interior of the growth remained sterile.

Microscopic examinations of the cerebral growth: Specimens were hardened in alcohol and sections made, including some of the surrounding brain and the new tissue down to the area of necrosis. There were found, engorgement of and exudation about the pial vessels. The brain structure about the growth shows the ganglion cells well preserved, some edema and a slight cellular infiltration of the perivascular spaces. Here there seems to be no increase of connective tissue. In the outer portion of the growth proper there are numerous thin-walled blood vessels, many of which are distended with blood corpuscles, and in not a few are leucocytic thrombi. At some points there are small areas of hemorrhage. About the vessels there is quite a marked emigration of polynuclear leucocytes, some round cells with solid nuclei, and a considerable number of cells containing rounded or oval, clear, vascular nuclei of variable sizes; only a few are spindle shaped. These latter cells are most numerous just outside the vessels, although some are remote from them, and are most likely proliferated endothelial cells arising from the perivascular lymphatics. Such an interpretation is born out by the pressure of collections of similar clear nuclei here and there, having an arrangement much like the nuclei of giant cells of tuberculosis, but upon close examination there is no cell body, while a central lumen is present around which the nuclei are radially arranged. They would seem then to be proliferated endothelia of lymph vessels. The multipolar ganglion cells are present in the growth, showing a location in the brain rather than upon it. They are often necrotic, presenting nuclear fragments. The portion nearer the central softening is more edematous, there are fewer vessels and the exudative and proliferative cells are less numerous. Here the nuclei are often absent or faintly stained, the cells staining diffusely with eosin.

There are no caseous areas nor giant cells so suggestive of tuberculosis. It is also worthy of note that there is little attempt of fibrillation of the connective tissue cells and consequently slight production of connective tissue fibers.

To sum up: The growth consists of granulation tissue which is edematous and necrotic in the interior, while in the outer portion the tissue approaches more nearly the adult type of connective tissue, there being less edema and necrosis and some attempt at fibrillation of cells. Sections stained in fuchsin-anilin water, decolorized with 5 per cent. sulphuric acid and alcohol. Contrast stain with methylene blue, and examined with one-twelfth oil immersion lens and No. 3 eye-piece, Leitz, showed no tubercle bacilli or other organisms. In the absence of any structure suggestive of tumor, likewise the absence of tubercle bacilli or tuberculosis in any of the organs, it seems one is justified from the findings to say that cerebral gumma is the most probable diagnosis.

A CASE OF CEREBELLAR ABSCESS, SINUS PHLEBITIS, AND SUPPURATIVE OTITIS MEDIA.

Read before the Chicago Pathological Society, Dec. 10, 1894.

BY JOHN L. MORRIS, M.D.
CHICAGO, ILL.

Olof J., age 27; Norwegian; admitted to Presbyterian Hospital Oct. 4, 1894; occupation clerk; family history negative. Previous illnesses: When 14 had tonsillitis which lasted six months, ending in a tonsillar abscess, which was ultimately lanced. Three times during the past year he has fallen down in a "faint," as he describes it. These spells would last about five minutes, after which he would recover and be enabled to resume his work. Present illness began four weeks before admission to the hospital, by sudden pain in left ear followed by a chill. The earache was persistent, but for two days he continued his work, when he was obliged to take to his bed and consult his physician. Next morning he had a sudden exacerbation of pain followed by a discharge of pus from the left ear. On this day he first noticed a slight frontal headache which has gradually increased in severity. On this third day of his illness he vomited his dinner. Subsequent to this he had vomited about once each day. Four days afterward he had a second chill, after which he was delirious, the delirium lasting about ten days. During this delirium he had four or five chills at irregular intervals. At this time, owing to the masked symptoms presented, a diagnosis of probable typhoid was made by his physician. Up to the time of admission to the hospital he had had no dizziness, earache or other subjective symptoms; was constipated, but had good appetite.

On admission to the hospital, his condition was as follows:

Pulse 66, temperature 90, respiration 20; countenance pale, drawn and anxious; breath, fetid; tongue foul and extremely red; eyes closed, as patient explained, to exclude the light; intellect slightly dull and sluggish, but perfectly rational when addressed; eye and face reflexes normal; no tender points discoverable about ear or cranium; abdomen boat shaped. An extremely foul odor emanated from the left external auditory meatus; discharge slight if any. Internal jugular on left side was palpable as a whip-cord-like structure, and seemingly much engorged.

Urinary analysis: Specific gravity, 1020, trace of albumen, extremely foul odor, and large quantities of biliary coloring matter.

During the first eight days after admission into the hospital, temperature from 98 to 94.6 degrees F.; pulse ranged from 70 to 50, respiration 20 to 16. Enematas were always necessary; urination free and sometimes involuntary; vomited almost regularly once each day and always after eating a few mouthfuls; vomit would be projectile and sudden.

Patient when placed upon his feet would stand steadily with eyes open or closed; no ataxia; knee jerk normal; fundus of eye was not examined; at regular intervals would suffer extreme exacerbations of frontal headache, which would always be followed by a fall of temperature to 95 or less, and by more or less drowsiness.

A diagnosis of abscess of the brain was made, but from lack of focal symptoms its locality could not

be determined, and it was deemed unwise by the consulting surgeon to operate immediately.

On October 12 convergent strabismus and diplopia were recorded; left external rectus paralyzed; left pupil irregular in outline. Patient was much brighter mentally.

On the night of October 12 the pulse went up to 120; temperature to 100 degrees and respiration to 24; patient suffering extreme pain. Under narcotics patient fell asleep about 3 A.M. At this time the pulse was regular, 94; temperature 96; respiration 16. For the next two days, with the exception of pain being more severe than formerly, patient's condition was the same as during the first eight days of his stay in the hospital.

On October 15, at 9:45 A.M., patient was examined by a member of the house staff and his condition seemed unchanged. Pulse was regular and of good quality, ranging about 70 or 75. Fifteen minutes later, patient expired very suddenly and quietly.

The autopsy was conducted by Dr. Bishop and myself. It gave the following information: Meningeal vessels much injected, no external bulging; ventricles negative. On lifting the brain about an ounce of pus escaped from under the cerebellum from the vicinity of the left lateral sinus; although great care was used in delivering the brain it was impossible to state whether the pus was free or not. In the anterior part of the left hemisphere of the cerebellum an abscess about the size of an English walnut was found in the substance of the cerebellum. The meninges evidently formed the inferior wall of the abscess. The groove for the left lateral sinus was filled by a plastic phlebitis for about the distance of an inch above and below the abscess. Any connection between the abscess and the internal ear was undiscoverable. The interior of the petrous bone was found to be filled with inspissated pus and osteo-porotic cancellous tissue. All organs and contents of thorax and abdomen negative. Stab cultures from the escaping pus, from the interior of the lateral sinus and from the abscess cavity were made. Bacteriologic investigations of these cultures were conducted by Dr. Weaver who was unable to demonstrate anything more than a putrefactive organism. The organisms from the three sources were demonstrated to be the same.

A CASE OF NODULAR TUBERCULOSIS OF THE CEREBELLUM.

Read before the Chicago Pathological Society, Dec. 10, 1894.

BY E. R. LE COUNT, M.D.

CHICAGO.

Clinical history kindly furnished by Dr. F. J. E. Ehrmann, Resident Staff, Cook County Hospital:

Wm. B., single; white; age 28; English. Admitted to service of Dr. Earle August 19, 1894. Stated that he had been out of work since March, on account of persistent neuralgic pain in both fore-arms. Of late, has complained a good deal of headache; tenderness over occipital region. Had gonorrhea three times; chancroid three years ago. Mental condition apathetic; sleeps most of the time and only with difficulty aroused. Eyes, pupils dilated and react slowly. Eye grounds show distended veins on each side. Tongue broad and flabby. Chest, examination negative. Abdomen, negative. General condition good; well nourished. When aroused, answers questions intelligently. Headache worse on motion; no pain elsewhere. Pain in occipital region radiating toward frontal region. Urine amber colored, acid, 1015, no albumen. Temperature varied between 96.4 and 99.4; as a rule, was below normal. Pulse 64 to 80; respiration 20.

Patient continued in this condition until September 23, when death occurred. Gradually apathy merged into stupor, a semi-comatose condition, and full coma.

NECROPSY.

Necropsy showed several (six to eight) nodules the size of small hazel nuts in left cerebellar lobe, some separate entirely from others; some deeply seated, and others in connection with the meninges. On section, these showed softened centers. There was also tuberculosis of the lungs; exact form and degree not stated.

Microscopic examination: Well marked necrosis; non-staining centers to all nodules examined; surrounding zone of round cell infiltration not very marked; very few giant cells and those not typical of those seen in tuberculosis elsewhere; tubercle bacilli found by staining with carbo-fuchsin and methyl blue—not numerous, found only in periphery areas of necrosis in the zone of round cells.

Conclusion: Tuberculosis of the cerebellum, corresponding to what is known as solitary tubercle. But there were more than one, and some were isolated from others and therefore the term, nodular tuberculosis, meaning areas of tuberculosis larger than the usual forms of tubercles would perhaps not be inappropriate.

DISCUSSION.

DR. A. R. EDWARDS—I was especially interested in the case Dr. Le Count reported, because of the fact that Dr. Ehrmann, of the house staff, and myself, had an opportunity to study the case clinically and make an ante-mortem diagnosis of the tumor, as well as its location. There are several points in the clinical history that were not recorded on the history sheet, of which I have notes. Although the patient was markedly paretic on both sides of the body, there was absolutely no localized paralysis in any member. Furthermore, there was no disparity between the two sides, the ocular muscles were perfectly normal and the reflexes were but slightly increased. There was no persistent vomiting, the patient vomited only once. We noted, from time to time, that there was never a slowing of the pulse. The patient complained of vertigo, even when he sat up in bed; "saw things moving around," as he expressed it. Regarding the ophthalmoscopic examination, not only were the retinal veins greatly engorged but the arteries were decidedly small, and there was, in addition, a small patch of choroiditis in the right eye. Here and there through the retina was a reddish color, and even opalescence of the disk, so that the condition was illustrative, not only of choked disk but also of optic neuritis and retinitis. Besides that there was one feature among the few focal symptoms which put us in the direction of making the local diagnosis; the fact that motion, so far as the head was concerned was perfectly free from side to side, but it hurt him considerably to throw his head in a forward direction. That suggested some affection in the posterior fossa. Then with the vertigo and ataxia, the marked choked disk and this stiffening of the muscles of the neck, as well as the localized tenderness there, the diagnosis was made of a cerebellar tumor. As to the nature of the tumor, an abscess was thought of. The patient declared that he had never had any venereal disease. Examination of the ears showed nothing abnormal. He had no temperature, and nothing in the periphery of the body or in the heart that would make us think of metastatic abscess. Syphilomata are not as frequent in the cerebellum as elsewhere. His gait was ataxic.

A careful and thorough anti-syphilitic treatment was instituted; two careful inunctions being given, one in the morning and one at night, and he was given large doses of iodid. That was continued three or four weeks, with absolutely no improvement up to the time the patient died.

DR. F. J. EHRMANN—I have nothing to add to the report,

except to say that the patient died unexpectedly; how that can be accounted for I do not know; it might have been caused by pressure on the medulla.

Dr. Sanger Brown—These cases have certainly been very interesting to me. In the case of Dr. Le Count it seems to me very rare discrimination was displayed in arriving at the diagnosis by exclusion and in other ways, but I think I should hardly have felt warranted in being so certain as to the position of the tumor as they seem to have been, inasmuch as the ataxia does not seem to have been strictly a cerebellar ataxia. It would seem to me, from the description given, that it might have been accounted for by the vertigo. It is a generally conceded fact that the cerebellar gait or cerebellar ataxia does not occur unless the middle lobe of the cerebellum is affected, and it appears that the middle lobe of the cerebellum was not affected in this case. It seems, in fact, that the symptoms were more particularly due to irritation than to pressure. Another point might be mentioned in this connection, and that is that in tumor of the cerebellum the knee-jerks are generally absent, and they were not absent in this case. A few months ago we had at the Post-Graduate Medical School a case of optic nerve atrophy and blindness, with persistent turning to the left and a cerebellar gait where the tendency was to sway. She did not complain particularly of vertigo. The knee-jerks were entirely absent. I made a diagnosis from the history, and for various reasons, of cerebellar tumor and the post-mortem justified the diagnosis. Within two or three weeks we had a case very similar in many ways, in which there were no focal symptoms but optic nerve atrophy and loss of the knee-jerk, and again I diagnosticated cerebellar tumor. There was evidently a growth within the cranium somewhere, but the autopsy showed a large cerebral tumor in the anterior lobes, so the diagnosis in that case was entirely wrong. It appears, however, that at the operation, after I had made my examination the operator was given a history of some sensory symptoms in one side of the face and in one arm, and he operated on the supposition that there was a tumor adjacent to the motor area, and he was right.

It was noted in the case reported by Dr. Morris, which was extremely interesting, that there was no ataxia, and yet the disturbance in the cerebellum must have been very much greater than in the last case. The variations in temperature and the subnormal temperature I think were very interesting, and it ought to be recorded as an interesting clinical fact for which at present we can offer no sort of reasonable explanation.

The case reported by Dr. Brower, of gumma of the cerebrum, was to me exceedingly instructive, and I do not think we would be warranted in regarding Dr. Brower's diagnosis as a mistake. I can imagine how very much surprised he must have been, with that array of symptoms, to find nothing on the surface of the brain, but the growth was just beneath the surface involving the tissues and the fibers passing off. I did not learn in that case the condition of either the knee-jerk or the fundus.

Dr. Brower—The fundus was normal. The knee-jerk was slightly exaggerated.

Dr. Brown—It would not be necessary, with the symptoms that were present, to examine the fundus in order to make a diagnosis, but it is always interesting to have the examination as complete as possible. I did not learn whether great pain in the head was complained of or whether there was vomiting.

Dr. Brower—There was no vomiting and no special pain in the head after the onset of these symptoms; the man had had headache for several years previously.

Dr. Brown—I should think that would make the case very much more interesting, more unique. How could such a tumor have existed (and it must have been a considerable time in forming) without producing one or two of the three cardinal symptoms in cerebral tumor, that is the focal symptoms, the paralysis or convulsions, the vomiting and the choked disk or optic neuritis. Those are considered the three cardinal tests for cerebral tumor.

Dr. H. T. Patrick—These cases have been very interesting and I wish to add just a word. Bruno, several years ago, called attention to the fact that large tumors in the frontal lobes do cause the cerebellar gait and other symptoms attributed to the cerebellum. Regarding the case of Dr. Brower, I beg leave to take exception to what I understood to be the meaning of Dr. Brower and Dr. Bishop as to the place of origin of the tumor; that it sprang from the centrum ovale. I think the position of the tumor, as well as the origin of most cases of gummata would lead us to suppose it sprang from the meninges of the surface and grew inward, which illustrates a very important point, not sufficiently emphasized, that cortical epilepsy, so-called, is often produced by subcortical lesions. This is of importance, not only in making the diagnosis but in the treatment of these cases by operation, because I think it necessitates a large opening of the cranium and if nothing is found in the cortex, at least on the surface, it is advisable in most cases to make a free incision in the brain. This has been shown to be not a serious traumatism; if the incision is made parallel to the fibers leading from the surface, it adds little risk to the operation, does small damage to the patient and increases the possibility of finding a lesion. In this case I think such a procedure would have led to the discovery of this tumor because just beneath the cortex, in the arm center, which was the suspected location, was an area of secondary softening due to the tumor which would have been found and probably have led to the discovery and removal of the tumor. In connection with this, in cases of Jacksonian epilepsy, the fits may be caused by a very small lesion in the center corresponding to the fits, or a larger lesion in the neighborhood, so that in many cases the lesion is not to be sought for, necessarily, in the center corresponding to the convulsions. Another point I would call attention to, is that in many of these cases the symptoms are not due to the growth but to a secondary vascular trouble, softening ordinarily, and the hemiplegia in Dr. Brower's case was due, not to the increase in the size of the growth, but to the secondary softening which was easily perceived beneath the tumor, interfering with the motor fibers. For this reason I think it is particularly important to make a diagnosis as early as possible and to be on the lookout. I have a case now under observation. of a man who suffered for a couple of months from severe and constant headache. There were no focal symptoms whatever except slight numbness on the right side, followed by a very slight weakness which did not incapacitate him from work, and shortly before I saw him a very slight degree of aphasia. He was seen by two excellent physicians; the first recognized no cerebral trouble, the other did very promptly, but he did not examine the man's eyes or he would have found a choked disk and could have submitted him to an active specific treatment which would have saved time later. Two days afterward the man had a sudden attack of right hemiplegia, right hemianopia, right hemianesthesia and very marked aphasia, assisting very greatly in localizing this trouble which indicated a large area of destruction. The question at once arose whether the man should be operated upon immediately or whether we should wait. The hemiplegia almost passed off in two days, and the question was still whether we should operate at once or submit the man to specific treatment and wait. We decided to wait, put him on large doses of iodid and two days later he had another attack, a very extensive softening with complete right hemiplegia and he is now in a most deplorable condition; whether syphilitic or not he has very little to gain from an operation of any kind.

Dr. H. N. Moyer—I would like to make one remark relative to the case of Dr. Le Count. It seems to me that is a case of rare interest and one very well stated. It has been customary to regard the lateral lobes of the cerebellum as not being concerned in the production of the ataxic gait when they are involved; that is, if the middle lobes and middle peduncle remain free there is commonly no ataxic gait. But I think we shall have to recede from this position somewhat. A case has been published recently, of sclerotic patches in the lateral lobes of the cerebellum, with the typical ataxic gait, the middle peduncle or angles of the root remaining entirely free from any involvement in the process, it being confined entirely to the cortical regions of the lateral lobes. This is a case almost parallel to Dr. Le Count's case. I think it of rare interest as it serves to help clear up some of the doubtful and obscure pathology of the cerebellum.

Dr. Edwards—As to the size and weight of the tumor in Dr. Le Count's case, although it did not grow in the portion of the cerebellum spoken of by Dr. Brown, when divested of all cerebral tissue it weighed forty grammes, and from the fact that the tumor was nearly the size of an egg, it does not seem hard to understand how, although anatomically it did not originate in the part of the cerebellum which is supposed to produce ataxia, yet by secondary pressure it could cause true cerebellar symptoms.

Dr. Brown—I had a wrong idea of the size of these growths. I thought they were small and not capable of causing such pressure as the Doctor speaks of. But since he speaks of the

tumor being nearly the size of an egg, it is easy to understand how the functions of the middle lobe might be seriously interfered with.

DR. BROWER—There are one or two things that suggest themselves to me in the further consideration of this gumma. I think the growth was a very rapid one. Some of the speakers thought it was a slow growth but I think it was very rapid. The first symptoms of any great brain disturbance, except headaches which he had irregularly for many years, occurred on October 19, and he died on November 23. He had his first convulsion, in which he lost consciousness, on October 19 and as soon as possible after that his physician brought him to Chicago for further advice in the case. I saw him on October 23, the fourth day after he had his first convulsion and I doubt very much whether there was any growth to amount to anything there at that time. As to the origin of the growth that is a matter of speculation, but I am very much of the opinion of Dr. Bishop that it is a growth beginning in the centrum ovale, rather than in the meninges, because I believe if that growth had begun at the cortex in the leg center where it is located, we should have had more disturbance of the lower extremities. Except in his first attack, when the convulsions were general, it was very uncommon for this spasmodic movement to extend beyond the muscles of the hand and the fore-arm, rarely involving the face and very seldom indeed the leg. I suppose I saw him in a dozen of these attacks in the ten days he was here and I noticed no spasmodic movement of the face and none of the leg. It seems to me if this tumor had had its origin at the cortex in the leg center where it was located, and involved the fibers from the arm center secondarily, that the symptoms would have been somewhat converse; we ought to have had more spasmodic movement in the leg and less in the arm, but so far as my observations were concerned there were no movements in the leg at all. The hemiplegia began with the arm and in the course of thirty-six hours involved the entire side of the body. So taking the array and succession of symptoms, I should be inclined to suppose that it began in the centrum ovale. There was no improvement in the hemiplegia after it began. All the symptoms disappeared under the use of large doses of iodid of potassium. I am quite sure the tumor must have made rapid growth.

DR. LE COUNT—In regard to the size of the cerebellar tumors, there were eight of these tumors found and they would average a centimeter to a centimeter and a half in diameter, so that would make quite a mass in the left lobe that certainly could cause pressure upon the middle lobe of the cerebellum. These tumors were more or less spherical, and it was for this reason that I gave the title of nodular tuberculosis, which does not seem to me to be inappropriate. Tuberculosis may affect the cerebellum or the cerebrum. The usual form is tubercular meningitis. We have very rarely a diffuse tuberculosis throughout the substance of the cerebellum or cerebrum, and occasionally this form of nodular or solitary tuberculosis. As there was not a single area, I thought the title of solitary tuberculosis was not appropriate. The discussion, as usual, has taken mainly a clinical aspect. I would have been glad if it had to do with the etiology at least of these cases. The consideration of the primary focus in the cerebrum and cerebellum is considered very conservatively by most authors. Osler mentions it as occurring. Simon, of Nancy, last year made twenty-seven post-mortems in cases of tubercular meningitis and in twenty-five was able to demonstrate a primary focus elsewhere. The primary focus in this case was probably in the lungs. The bronchial glands were found enlarged. The next question that arises is, What is the course taken by the infection to reach the cerebellum or cerebrum? In the majority of cases certainly by way of the lymph vessels, as Weigert has shown in investigating the location of tuberculosis. Then what is the route of the infection in a case of this kind? If we are to presume tubercle bacilli in the lymph vessels, why not a tubercular meningitis and death before we have time to obtain such gross areas as this. On the other hand, if we suppose infection by way of the blood vessels, we must take into consideration the fact that there are probably but few bacilli in the blood vessels and they locate at one point and in this way we have time for the development of large gross or nodular areas of tuberculosis. Concerning extension by way of the lymphatics, the most usual route, I have been unable to find anything in the literature.

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ORIGINAL INVESTIGATIONS ON THE NATURAL HISTORY, (SYMPTOMS AND PATHOLOGY) OF YELLOW FEVER. 1854–1894.

BY JOSEPH JONES, M.D., LL.D.
NEW ORLEANS, LA.

(*Continued from page 366.*)

CHAPTER VII.

CONSTITUTION AND CHANGES OF THE BLOOD IN YELLOW FEVER.

Recapitulation.—Facts illustrating the changes of the blood during the active stages of yellow fever. Alterations of the chemical and physical properties of the albumen and fibrin. In many cases complete disappearance of the fibrin. The disappearance of the fibrin appears to be due, not so much to the action of ammonia, which is so often found in the blood of yellow fever, as to the direct action upon this element, of the febrile poison. Character of the blood in the cavities of the heart after death. The alterations in the physical and chemical properties of the fibrin and albumen, lead to transudations through the excretory structures of the kidneys. While the colored blood corpuscles are not specially diminished in yellow fever, they present under the microscope certain peculiar appearances which are referable to the action of certain extraneous excretory matters in the blood. Extractive and fatty matters increased in yellow fever blood. Bile accumulates in the blood, in consequence of the profound lesions of the liver induced by the febrile poison, and in consequence of the failure in the excretory power of the kidney. The serum presents a golden yellow color in yellow fever. Accumulation of the urinary constituents, and especially of the urea and phosphoric acid, sulphuric acid, chlorid of sodium and carbonate of ammonia, in consequence of the profound lesions induced by the febrile poison and its products upon the kidney. Breath alkalin from presence of ammonia. Blood corpuscles rapidly dissolved, after the abstraction of the blood. Blood of yellow fever undergoes rapid putrefaction. Cases illustrating the changes of the blood in yellow fever. Observations illustrating the changes of the organs in yellow fever and in malarial paroxysmal fever. The colored blood corpuscles are not specially destroyed in yellow fever, as in malarial fever. The nervous symptoms of yellow fever referable chiefly to the presence of bile and the constituents of the blood in the urine. Causes of death in yellow fever. Microscopic character of black vomit. Relations of the variations of temperature and circulation to the changes of the blood. Observations and cases illustrating the relations of the pulse, respiration and temperature. Observations of various observers, as Rush, Devoe, Currie, Caldwell, Samuel Jackson, Lewis, Arnold, Chalmers, Lining, Daniel Blair, John Davy, Faget, Leighton and Lyons. The cause of the rapid rise and declension of the temperature in yellow fever must be sought chiefly in the changes induced in the blood, and in the organs upon which the circulation and integrity of the blood depends. Neither the rapid rise, nor the sudden declension of the temperature can be referred wholly to the effects of the yellow fever poison upon the nervous system. Discussion of these propositions.

That the blood undergoes profound changes during the period of febrile excitement of yellow fever is manifest even to the casual observer, in the impeded capillary circulation, purplish, jaundiced and dusky hue of the surface, livid blotches, passive hemorrhage from slight abrasions, leech bites, blistered surfaces, and hemorrhages from the ears, eyes, mouth, gums, and gastro-intestinal mucous membrane, which in some cases are characteristic of the succeeding period of calm or exhaustion.

Although after the subsidence of the fever, at the end of from two to five days, the skin becomes cool and pleasant, the tongue shows a disposition to clean, and the tips and edges are less red, the thirst abates, and appetite for food returns, and the anxiety and morbid fear of death, which may have been great, subside, and both patient and bystander may regard convalescence as established; nevertheless, a careful examination, will show that the circulating fluid has

been altered during the preceding stage of febrile excitement; the eye loses its glistening appearance and assumes a condition of chronic vascularity, of a dull orange red; the flushed countenance gives way to a bloated appearance and dusky, dirty complexion; the sclerotic of the eye is jaundiced, the forehead presents a dusky appearance, which extends also over the neck and chest, the languor of the capillary circulation is indicated in the purple and lobster red condition of the skin, and by the pale marks left by pressure over the forehead, cheek, abdomen, or surface of the extremities; the matters vomited, which at first may be tinged with bile, change to a clear, acid, mucous fluid, and become discolored by small dark specks and flocculi of blood. The further changes of the blood are indicated by an increase in the purplish or yellow suffusion of the surface, and by such a loss of vitality and of the fibrinous elements as manifests itself in the raw claret-colored surface of blisters, in epistaxis, ecchymosis, bloody oozings from the mouth, ears or anus, excoriation of the scrotum, the copious ejection of dark altered blood from the stomach, with little or no apparent effort, copious stools of black altered blood, and by the foul fetid alkalin breath containing ammonia.

It appears to be an error to treat of the changes of the blood as confined to the latter stages of yellow fever, thus regarding the disease as manifesting only two grand stages, viz: that of reaction, irritation and fever, and that of unhealthy subsidence or contamination, characterized most prominently by exhaustion of the nervous system, slow pulse and passive hemorrhages.

The changes of the blood appear to be continuous, from the time of the introduction of the poison to the fatal termination; these changes being increased, and their character being modified as the disease advances, not only by the direct action upon the constituents of the blood by the poison, but also by the addition of certain noxious substances, as bile, urea, carbonate of ammonia, sulphates and phosphates and extractive matters.

Certain constituents of the blood, as the albumen and fibrin, are not only altered physically and chemically in the early stages of yellow fever, but as the disease advances, from the cause just specified, certain excrementitious matters, which in a state of health are continually eliminated accumulate in the circulating fluid, and by their direct action upon the elements of the blood, and upon the nervous system, and by their disturbing action upon the processes of digestion and nutrition still further alter the physical, chemical and vital properties of this fluid.

As far as my observations extend, the alterations of the blood in yellow fever consist chiefly in:

1. Such an alteration of the chemical and physical properties of the fibrin and albumen as leads to the transudation of the latter through the excreting structures of the kidney.

2. Various degrees of alteration and diminution of the fibrinous element.

In some cases there is an almost entire disappearance of the fibrinous element. This disappearance of the fibrinous element appears to be due not so much to the action of ammonia, which is so often present in abnormal amount in the blood of yellow fever, but in the direct action upon this element of the febrile poison. From this alteration in the amount and character of the fibrinous element it results that the blood coagulates imperfectly in most cases, and the clot is voluminous and soft. The amount of serum formed is small, and upon standing, the clot frequently dissolves, leaving a thick, non-coagulable grumous blood. The blood taken from the cavities of the heart and large blood vessels after death is frequently black and fluid; and if, as is sometimes the case, fibrinous concretions are formed in the cavities of the heart, they are small, soft, and of a bright golden yellow color, and much smaller in size and less firm than is usual in attendant diseases near the fatal issue, with similar retardation of the circulation in malarial fever. In the latter disease the formation of firm, light colored blood clots is, as I have shown, by a large number of observations, not only frequent, but also a cause of death in certain cases of pernicious malarial fever.

3. While the colored blood corpuscles are very slightly diminished in yellow fever, they present under the microscope, certain peculiar appearances, which appear to be referable to the action of certain extraneous matters in the blood.

4. Increase of the extractive matters of the blood.

5. Increase of the fatty matters.

6. Accumulation of bile in the blood, in consequence of the profound lesions of the liver induced by the febrile poison, and in consequence of the failure of the excretory function of the kidneys. Many of the changes of the blood, as well as certain cerebral symptoms, may be dependent upon the presence and action of the biliary constituents. Even the nausea and vomiting, as well as the depression of the pulse, and the nervous agitation, delirium and coma, may to a certain extent be referred to the same cause. The serum presents a golden color in yellow fever. This condition of the serum is due to the presence of bile and may be present also in grave cases of paroxysmal malarial fever. If a drop of yellow fever blood be allowed to fall on a piece of bibulous paper the center will appear of a brilliant scarlet, while around the central accumulation of colored blood corpuscles extends a ring of bright golden colored serum.

7. Accumulation of the urinary constituents, and especially of the urea and phosphoric acid, sulphuric acid, chlorid of sodium and carbonate of ammonia, in the blood, consequent upon the profound lesions induced by the febrile poison and its products upon the kidneys. Not only is the blood alkalin in many cases of yellow fever, but the blood contains ammonia, resulting from the decomposition of the urea, the presence of which may be rendered evident by various means, as by the addition of potassa, soda or lime; and in some cases the ammonia is so abundant as to be demonstrable without resorting to these reagents. As the phosphoric and sulphuric acids are retained in the blood when the function of the kidneys is embarrassed or suppressed, they unite with the ammonia and thus diminish the alkalinity of the blood and render the addition of potassa or soda or lime necessary in certain cases for the demonstration of the ammonia. The reaction of the yellow fever blood is alkalin during life, but it rapidly changes in some cases to the acid reaction after death, from the rapidity of the putrefaction, and also from the development of numerous forms of low organization.

8. Rapid dissolution of the colored corpuscles, after the blood is abstracted from the body, either

during life or after death. The rapid alteration of the investing membrane of the colored blood corpuscles in the blood of yellow fever, after the abstraction of the blood from the vessels, appears to be intimately related to, if not absolutely dependent upon, the physical and chemical action of the biliary and urinary constituents retained in the blood. During life the blood corpuscles, in virtue perhaps, of their vital endowments and of their relations to the oxygen received during respiration, resist the solvent action of the bile, urea and ammonia; but after the blood is abstracted and loses its vitality and is exposed in vessels these agents excite their characteristic actions. It results also that in many cases the serum separating from the clot presents a bloody florid color, not only from the incomplete separation of the colored corpuscles during the process of coagulation, but also from the dissolution of the globules, and the escape of the coloring matters of the blood. I have recently embraced the opportunity of testing the efforts of human bile upon the blood corpuscles. I selected for this inquiry the blood of the *amphiuma* in which animal the globules are comparatively of great size. The bile rapidly dissolved the investing outer membrane, and liberated the internal nodulated nuclei.

9. Rapid putrefaction of the blood of yellow fever, after its abstraction from the living body, or from the large vessels after death.

These conclusions have been established by careful and laborious observations at the bedside and in the laboratory; the nature and method of which will be illustrated by the following observations:

The following analysis of the blood in a severe case of yellow fever which terminated fatally, on the sixth day, with black vomit and urinary suppression, presents a correct view of the blood composition on the fourth and fifth days, in severe cases of this disease.

The fibrin in 1,000 parts of blood extracted from the arm of this patient being 0.271, or not more than one-tenth of that of healthy blood. This diminution of the fibrinous element was attended by passive hemorrhages, black vomit, etc.

Specific gravity of blood, 1055.6; of serum,	1027
Water in 1,000 parts of blood	802.12
" " " " serum.	922.90
Solid matter in 1,000 parts of blood	197.88
" " " " " serum.	77.10
" " " serum of 1,000 parts of blood	67.03
Saline matters in 1,000 parts of blood	8.48
" " " blood corpuscles of 1,000 parts of blood	1.78
" " " 1,000 parts of serum	7.71
" " " serum of 1,000 parts of blood	6.69

1,000 parts of blood contained:

Water.					802.12
Solid residue, 197.88	Organic matters, 189.40	Dried blood corpuscles, 130.57	Organic matters		128.79
			Saline matters.		1.78
	Fixed saline constituents. 8.48	Solid matters in serum 67.03	Albumen . 53.40	Organic matters	51.59
				Saline matters .	1.81
			Extractive matters 13.72	Urea, bile, fat and carbonate of ammonia, etc. . .	8.84
				Inorganic matt'rs	4.88
	Fibrin.				0.271

1,000 parts of blood contains:

Moist blood corpuscles, 522.28	Water of moist blood corpuscles . .		392.71
	Organic matter.		128.79
	Saline matter		1.78
Liquor sanguini. 477.72	Albumen. . . 53.40	Organic matters. . .	51.59
		Saline matters. . . .	1.81
	Extractive matters . . 13.72	Urea, bile, fat and carbonate of ammonia	8.84
		Inorganic matters . .	4.88
	Fibrin		0.271

Urea and bile acids were detected after death in considerable amounts in the brain, liver, heart and spleen of this patient; the black vomit also, ejected during life and remaining in the stomach after death contained urea.

John Alter, yellow fever. Patient attacked with symptoms of yellow fever, September 29, died Oct. 4, 1871. Analysis of blood, black vomit and bile. Urea detected in the blood during life, and also after death. Urea detected in large quantities in the brain, in the fibers of the heart, and in the liver and spleen. Fat, in the form of globules, deposited in large amount in the liver, kidneys and in the muscular structures of the heart. Tubuli uriniferi filled with granular fibroid matter, oil globules, and epithelial cells. Blood and brain and all the organs contained bile. Stomach congested; mucous membrane softened, epithelial cells filled with granular matter.

Case 1.—John Alter, age 21; native of Switzerland; has resided in Louisiana during the past four years, and has lived alternately on the shores of Lake Pontchartrain, and in New Orleans; the greater portion of his time being spent at the Lake. Entered the Charity Hospital Oct. 3, 1871, 10 o'clock A.M. Patient lethargic and dull as if suffering under the effects of some narcotic poison; in response to careful and persistent inquiries, however, he gave with difficulty the following facts relating to his disease: "Took passage on steamboat to Vicksburg ten days ago for the purpose of obtaining employment; failing to effect his object, at the end of two days, started back on a steamboat, and four days ago, while on the return trip, began feeling unwell." Patient complains of pain over region of the stomach, in the small of the back and in the lower extremities. Has a sleepy heavy look; complexion yellow and dusky; conjunctiva of eyes, mucous membrane of lips and gums, and the skin generally, greatly congested, tongue furred in the center and on the borders; bowels constipated. Beef-tea, small quantities of alcoholic stimulants and absolute rest were ordered. Patient appeared to be quiet during the day, but was very restless during the night. October 4, 9 A.M., patient delirious, restless; ejecting black vomit from the mouth, with little apparent effort. Complexion bright yellow; whites of eyes yellow; skin greatly congested, and in the extremities mottled; eyes congested; black vomit and black blood from the gums trickling down the corners of the mouth. Body emits a most disagreeable odor, resembling that emitted in some of the worst cases of typhus fever, smallpox and typhoid fever. Pulse full and slow, skin only moderately warm, dry and harsh to the feeling. When pressed with the finger, the blood is driven out of the capillaries, but slowly returns into the discolored spot. Complete suppression of the urinary secretion during the past twenty-four hours.

I determined to bleed this patient, and to make a careful microscopic examination and chemic analysis of the blood. When the arm was tied up preliminary to the use of the lancet, the patient cried out and gave forth delirious screams mingled with incoherent sentences and curses, and at the same time struggled violently. After the vein was opened, it required all the strength that I could command, with one hand, to extend the right arm and keep it in the proper position for the collection of the blood in suitable vessels.

(*To be continued.*)

THE EARLY DIAGNOSIS OF CARCINOMA OF THE STOMACH, WITH THE BACTERIOLOGY OF THE STOMACH CONTENTS.

BY FENTON B. TURCK, M.D.

PROFESSOR OF DISEASES OF THE STOMACH AND INTESTINES, POST-GRADUATE MEDICAL SCHOOL; ATTENDING PHYSICIAN TO THE COOK COUNTY HOSPITAL.
CHICAGO.

(*Continued from page 347.*)

The following is a tabulated group of cases of various pathologic conditions of the stomach, studied as to the class of microörganisms associated with each case.

Patient.	Age.	Referred by	Principal Symptoms.	Diagnosis.	Free HCl.	Lactic Acid.	Total acidity	Principal germs found.	Remarks.
B. F. D. . . .	22	Dr. Newman . . .	Vomiting, gas, pain. .	Stenosis, dilatation.	1 hr. after meal.	Ether ext., Uffelman's.+	60	Sarcinæ in great quantity	Sarcinæ found in fasting stomach, forming a great mass.
Mrs. McC. . .	45	Dr. Newman . . .	Diffuse pain, great distress after eating, depression.	Gastritis, beginning atrophy. .	—	Ether ext. + .	40	Micrococci, short and long rods	Great number of wedge shaped colonies of micrococci.
Mrs. J. B. . .	47	Dr. Bacon.	Prickly sensation in stomach, headache, anorexia.	Gastritis, beginning atrophy. .	—	Ether ext. + .	32	Small rods like bacilli coli com. yeast, lactic acid germs. .	Could not exclude carcinoma at first; after two years patient showed no signs and HCl .11% . .
Annie S. . . .	31	Dr. Martin	Pain in epigastrium, dizziness, headache	Chronic parench nephritis.	—	No lactic acid by Boas' method.	15	Nothing marked beyond a few rods; no cultures made . . .	Gastric symptoms so severe to mask all disturbance; albumen traces hyalin and gran, casts.
Dr.	.	Dr. Martin	Distress 1 hour after eating, depression, loss in weight. . . .	Tuberculosis pul (?)	—	Ether ext. + faint. . . .	30	Large number of tubercle bacilli. . .	The tubercle bacilli appeared in contents of S. drawn off.
Wm. B.	46	Dr. Hall.	Paroxysms of gastralgic radiating; nervous unrest.	Neurosis	+	—	90	Mixed variety, few microörganisms, no cultures.	As only the usual appearance of a few germs distributed here & there, no bacteriologic study was made.
M. P.	43	The General Medicine Clinic . . .	Uneasiness in region of stomach, anorexia, loss in weight, night sweats	Carcinoma of the pylorus	+	Extract with ether, with Uffelman's reagent. ++	55	Lactic acid forming bacilli; long and short rods, threads; curved bacilli . . .	Four exam. made 9 mos. after HCl negative; tumor pylorus; patient left city, reported dead.
Mrs. D. H. . .	38	Clinic.	Rapid loss in weight, gastralgia.	Withheld for further examination.	+	Boas' method .05+; two analyses made.	35	Few lactic acid germs, only appeared in milk and starch culture	First attempt no lactic acid forming germs appeared, on second attempt few found.
Chas. W. C. .	39	Clinic.	Vomiting as soon as he took food, loss in weight	Chronic interstitial gastritis . .	—	—	Very weak pepton	Staphylococcus and streptococci, short rods like bacilli coli communi.	Stomach just below costal arch by gyromele exam. held only 350 c.c. water.
Mrs. C. S. . .	37	Dr. Sanger Brown.	Bloating, dypsnea especially at night, headache.	Gastro-enteroptosis	+	—	43	Black and red yeast colonies, gas forming.	Symptoms disappeared after disinfection.
A. L. B. . . .	34	Dr. Kirkpatrick. .	Distress shortly after eating, rapid emaciation, pale, approaching cachexia.	Carcinoma ventriculi.	—	Boas' method 0.95% by Dr. Wesener. . .	. . . .	Lactic acid bacilli, threads, short rods, micrococci	Diagnosis not confirmed, laparotomy advised.
Mrs. M. W. . .	61	Dr. Ayers.	Pain in epigast. region radiating to the right side.	Gastro-enteritis, chronic, with atrophy.	—	Boas' method 0.055%. . . .	20	A number of colonies of bacilli like the coli communi. . . .	The cultures gave culture medium an acid reaction.
Mrs. B. R. . .	32	Dr. Brower	Late gastric symptoms of tuber. pul.	Tuberculosis pul.	—	Uffelman's (negative) .	9	Tubercle bacilli in great numbers in stomach contents .	Could not determine colonies, only what might be swallowed.
Mrs. L.	54	Dr. Babcock. . . .	Cardalgia, belching, pyrosis, headache, insomnia.	Gastroptosis; gastritis gland. chron.	—	Uffelman's —	69	Several forms yeast, gas forming; wedge shape colonies of micrococci, lactic acid only in one milk culture	Great number of leucocytes.
Mrs. H. S. . .	28	Dr. Newman . . .	Burning sensation in stomach, gas, emaciation, stagnation of food.	Gastritis gland. chron. stenosis, dilatation, gastroptosis.	+	—	60	Sarcinæ ventriculi, many other forms but masked by the sarcinæ.	Hyper. of pylorus operation, pyloplasty advised .
F. S.	24	Dr. Gehrman. . .	Dull heavy feeling after eating, remnants of food 20 hrs. after eating.	Stenosis (?) (no marked extension) hypersecretion.	+	—	80	Cladothrix. Algæ (rivularia, nostoc communi) cultures in water.	Stomach contents were a rich dark green; after filtering and introducing the algæ into the gastric juice, developed rapidly.
Flora S. . . .	21	Dr. Newman . . .	Headache, gas, gastralgia, emaciation.	Dilatation	+	—	50	Same as above yeast .	Light green contents found at night after washing S. in morning; nothing eaten during day.
J. S. McC. . .	27	Dr. Sanger Brown.	Constant pain in epigastrium emaciat'n.	Dilatation, hypersecretion.	+	—	70	Algæ gelatinous fronds in unicellular masses, threads and spirillæ; yeast . . .	First exam. dark green, after two treatments light green contents from empty stomach.
G. K.	23	Dr. Melms	Constant pain in epigastric region. . . .	Dilatation, constant flow. . . .	+	—	112	Similar to above; develop in water a drop dil. ammonia; will not develop when HCl .1% added to water	Green fluid; removal by use of liquid soap, and gyromele; lavage retards but green color returns in a day or two.

The work here presented, represents cultivations made over a period of two and a half years.

There seems to be a law in the growth of germs in the stomach as in artificial cultivation, viz., those colonies will take precedence and predominate when the culture media and other conditions are most favorable for the development of these special classes and varieties. Sarcinæ grows best in a dilated stomach with benign stenosis, even where an excess of HCl is formed, whereas outside the stomach the

sarcinæ grows better in an alkalin medium. The fact of the HCl being in excess can not be considered as a reason, but the culture medium is so fertile for the growth of sarcinæ that they rapidly develop in vast numbers, even in this acid medium. It may be that these and other microörganisms that develop with the sarcinæ may excite and cause hypersecretion and the excess of HCl. In the dilated stomach, without stenosis, are often found algæ, cladothrix, and various saprophytes which grow with great rapidity, while other microörganisms take second place. Many forms of yeast thrive well in these cases of simple dilatation many of which are gas forming and differ from sarcinæ ventriculi. In carcinoma, the lactic acid forming bacteria seem to thrive best, and though found in other conditions, yet as sarcinæ thrive best in benign stenosis, the lactic acid microörganisms like better a malignant stenosis.

It is impossible at present to consider infection of the stomach as due to any specific microörganisms. Gastritis glandularis chronica is an inflammatory process excited by various etiologic factors and the process is kept up so long as conditions permit certain groups of microörganisms to colonize. When stenosis occurs, one class seem to predominate, viz., sarcinæ ventriculi, of which there are five varieties. Sarcinæ are found in other diseases besides benign stenosis, but in this class they seem to have the best possible conditions for rapid development. In some cases it seemed as if the entire contents, measuring from 100 to 500 cc., were made up of these packet-shaped microörganisms.

In carcinoma, especially of the pylorus, the lactic acid forming bacilli take precedence. The other varieties are present; in fact an inflammatory process is set up, in all appearances of an infectious nature, but when the experiments and bacteriologic evidence present so constantly the presence of the lactic acid microörganisms in a greater number of colonies than are found in the other diseases of the stomach, it presents startling evidence of considerable diagnostic value, as markedly at least as sarcinæ found in benign stenosis.

I have observed five varieties: Small rods, rounded ends; long threads, unequal lengths: a short slightly curved bacterium; micrococci, and a macrococcus. There are a great number that can produce lactic acid when the media is suitable. There is one class of infection in the stomach which seems to markedly alter the glandular tissue by direct irritation as a chronic inflammatory process. Another class in which the stomach acts as an incubator, producing no great disturbance to the gastric wall, but the absorption of the products formed produce profound general poisoning. Both of these conditions may be present at the same time, or one may overshadow the other.

In experimenting with lactic acid cultures in the stomach of animals the results are not very brilliant. In the dog it is very difficult to grow them—whereas the sarcinæ and the red and black yeast will grow in the stomach if a certain condition is produced.

EXPERIMENTS ON DOGS.

Experiment 1: Introducing three tube cultures of sarcinæ into a healthy dog's stomach. No sarcinæ could be found after the lapse of forty-eight hours.

Experiment 2: Tying off the pylorus enough to produce marked stenosis, but not complete.

Introducing three cultures: 1, sarcinæ; 2, red yeast; 3, black yeast.

Result: The microörganisms were found within forty-eight hours, but by no means proliferating.

Experiment 3: Introduced tannic acid into a dog's stomach, applying to the entire wall with the gyromele daily for one week. As this is the first step in the experiment to produce artificial gastritis, I introduced the contents from the stomach of patients suffering from chronic gastritis. As soon as the animal showed signs of loss of appetite, refused to eat meat, and grew thin, the pylorus was tied off as in the other experiments. Here sarcinæ developed rapidly.

Experiment 4: The contents drawn off when introduced into a sterilized milk and put at 37 degrees C. for forty-eight hours showed lactic acid by Uffelman's reagent +. Did not secure any pure cultures of lactic acid bacilli.

Experiment 5: Introduced algæ from cultures made in the filtered contents of stomach of patients in which algæ was found. The algæ died out.

At present it is impossible to consider algæ pathognomonic. The algæ is found in a great many cases of dilated stomachs with HCl+ and hypersecretion. The Germans frequently note a green color of the stomach contents, some alluding to it as bile, but it may be that by more careful microscopic examination of the green colored contents, algæ will be found present, and by careful observation a large number of these cases can be found and classified.

In this work I can only call attention to the presence of algæ in certain dilated stomachs, for the purpose of comparison and grouping the class of microorganisms found in each particular disease. In another work devoted to this subject, I shall give the results of cultivation and classification,

Algæ require quietness and rest to develop well. When cultures are made in small bottles, carried in the pocket, the movements of the body prevent the development, whereas the same culture in a resting condition (as on a shelf), develops rapidly.

The dilated stomach in which the organisms are found shows a great lack of "muscle tone," and may act like a swinging hammock, so that comparatively little disturbance is caused in the body movements. Stagnation exists. This same condition exists in the growth of the microscopic algæ in nature. A running brook is not in as good condition for the growth, as a pool. In cleansing the stomach thoroughly until the water ran clear, and allowing the patients to fast for twenty hours, the green color appeared again in the secretion, which was found, on microscopic examination, to be due to the algæ. This was demonstrated in six cases.

To formulate a satisfactory classification of microorganisms found associated in each class of pathologic conditions of the stomach, is a most difficult undertaking. There are over thirty varieties of pathologic and non-pathologic microörganisms that can develop in the human stomach. Many are found in health and are also found shortly after birth.

(To be continued.)

THE forty-sixth annual session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

SOCIETY PROCEEDINGS.

Proceedings of the First Meeting of the American Academy of Railway Surgeons.

Held at the Grand Pacific Hotel, Chicago, Ill., Nov. 9 and 10, 1894.

(*Continued from page 367.*)

SHOULD A RAILWAY SURGEON BE REQUIRED TO PROCURE A HISTORY AS TO THE CAUSE OF AN ACCIDENT OVER THE SIGNATURE OF THE INJURED?—REASONS OPPOSING SUCH REPORT.

BY DR. GEO. CHAFFEE.

SURGEON LONG ISLAND R'Y, BROOKLYN, N. Y.

It is understood that papers presented before this body are not written to advertise either the writer or this institution.

There are in railway surgery, as we find throughout the broad domain of medicine and surgery, many disputed points, many unsettled questions.

That stalwart fellow—the engineer—who, for hours at a time stands at his post on the engine, while the vestibule flyer is being hauled across great stretches of our country, knows very well the character of the track before him, the nature of the different grades and curves. So too, the captain of an "ocean greyhound" must know well the course over which his vessel must pass, to insure his passengers comfort and safety.

The railway surgeon, in turn, should not only have a fair knowledge of medicine and surgery, but he should as well know something of medico-legal questions; for the course over which his bark may drift is often quite rocky.

One object of this institution is to seek for Truth; another, is to see that Justice be allowed to sit supreme on her throne. If this institution should ever adopt a motto, let "Railway Surgery, Truth and Justice," compose not only the framework, but the entire front, from the ground floor, up. Let us, then, ever be found ready to aid in working out difficult problems, in sifting the good works of others, in selecting truths and valuable facts for the advancement of railway surgery. I have said that in this line of surgery we have disputed points. Reference to our program will show that the topic under discussion is one of them, or this paper would not have been written.

Now I assure you, that the grounds I shall take, and the effort I shall make in the discussion of this question, are not for the purpose of outdoing my opponent in any respect. It is simply with a desire that we may after sifting, secure enough grain to establish a standard by which all may be guided in the future. I shall first follow a line of reasoning, or rather of inquiry, looking in the direction of the injured person.

THE INJURED PERSON.

Railway surgery compels us to give our first aid to the injured. So we will first consider the injured man. Now is it policy for corporation and surgeon to combine and place their work on paper and on the records of the court against an injured person? I think not.

So far, I have found little trouble in securing the full confidence of the majority of my patients, and, in the course of a few days, when they are able to talk, usually succeed in drawing from them a full and satisfactory history of their case, and this too, in a legitimate way.

In case of slight injury where the surgeon may detect a disposition on the part of the injured person to magnify his trouble and bring suit, is it not possible for him while taking the history of the case, to include in a general way, a statement from the patient as to the *cause* of the injury—to get the *truth*, which should be all he will require for the treatment of the case, for a clinical record, and for use as a witness? I think so.

One truth sworn to by either surgeon or patient, and corroborated by the other, is worth more than a thousand affidavits secured under pressure. Suppose the injured party testifies that he has refused to give his signature, and that he resented the kind offer of the surgeon? What effect will such testimony have with the jury? Granting, then, that a signature has been procured by the surgeon, what effect will it have on the injured person? Will he not think that his surgeon is unduly exercised over his case, and will it not arouse *suspicion*, and at once suggest to his mind *litigation?* Will not such a course create a prejudice in his mind against the corporation, and will it not call forth unjust and unnecessary criticism from both friends and the public?

Having signed a paper and coupled with it delay, will he not feel or perhaps imagine that he has entered into bonds, or been drawn into a contract whereby he may have been taken advantage of, that perhaps his injury is even of a more severe character than he has been taught to believe, and, as a result—in some cases—may we not get anxiety, worry, and possibly a deranged condition of the mind? May we not aid in developing traumatic neurasthenia, or a hystero-neurasthenia, which will place the case in the hands of the neurologist, and which alone might eventually be the means of his bringing suit for many times the amount of the original injury? I repeat, that in some cases I believe it is possible for such a turn of affairs to take place.

I am aware that the last question which I have raised carries our investigation into a delicate field. Not only does it take up the physiologic element of the topic—the effect of grief, anxiety, worry and suggestion upon the mind, which in itself would furnish material for a paper, and which I do not care to discuss further, but it also involves the economic principle of compromise.

I will, however, offer in support of the opinion which I have advanced in regard to the psychologic and economic element of this question, a brief quotation from Dr. W. B. Outten's valuable paper on "Traumatic Neuroses:" "Compensation," as viewed by the writer, "does not possess the incidental elements of worry and harassment that obtain when litigation is indulged in. We are free to confess that in our views, the influence of compromise is great. It relieves the individual of all the attendant worries incident to litigation; its influence is in the direction of mild, normal and unruffled action." [1]

Again, granting that the surgeon has himself procured the signature of the injured party, suit is brought and the surgeon takes the witness stand with a history of the case over the signature of the plaintiff before him, and gives his testimony accordingly. Now, what effect will this surgeon's testimony have with the jury? I think the effect will be most damaging, both to surgeon and corporation.

Having, for the time being, disposed of our injured person, let us turn whatever power we may have left in our searchlight upon the corporation, and what shall we find? We shall find among the officers of the company a surgeon, an attorney, with some a claim agent, and with others, an adjuster.

THE DUTIES OF EACH.

Now for what purpose are these gentlemen employed?

1. The surgeon is employed to do surgical and medico-legal work.

2. The attorney or counsel is employed to do legal work, to try cases in court, to give legal advice, etc.

3. The claim agent, or adjuster, is employed to investigate all claims, to ascertain the causes of accidents, to visit witnesses, to secure all the information possible from various sources for the use of himself and the attorney, and last, but not least, to pay off claims.

I have briefly but clearly outlined the duties of surgeon, attorney and claim agent. Is it right, then, for a corporation to ask its surgeon to do the work of claim agent? The surgeon is employed, remember, to do surgical and medico-legal work. But I know you will ask, Is not this medico-legal work? Not strictly so. On the other hand, the *procuring* of a *signature* is a strictly *legal* procedure, having no medical status whatever; hence this fact carries the question under discussion outside of surgical and medico-legal lines, placing it in the hands of the company's attorney, or claim agent, where it justly belongs. The *cause* of an *accident* may be classed as surgical or medico-legal; but the procuring of a signature is quite another thing. It is purely legal and the work of the legal side.

I do not wish to be understood as taking the ground that it is wrong and never necessary for the *company* to secure the signature of an injured person. Far from it! In certain cases it may be highly essential. That, however, is for counsel to decide, and, having decided, let him do his own work, and let the surgeon keep right on "sawing wood," or rather bones, if necessary. When a surgeon lays aside the agents placed in his hands for the practice of surgery he should, for the time being, lay off the title of railway surgeon, for he virtually steps across the line from surgery to law when he assumes the task of procuring the signature of an injured person. And although his pathway while doing this work may apparently be strewn with roses of the brightest tint and sweetest perfume, I am certain that he will find upon the witness stand a chair well upholstered with the sharpest of medical legal thorns.

[1] R'y Surg., Vol. I, No. 7.

TREATMENT OF BURNS OF THE CONJUNCTIVA.

BY D. C. BRYANT, M.D.

OCULIST UNION PACIFIC RAILWAY, OMAHA, NEB.

In order to come to any rational conclusions in regard to the treatment of any certain class of injuries, it becomes necessary to inquire into the nature, cause and results to be expected from the kind of wounds under consideration.

A brief glance at the causes and the conditions usually found in burns of the conjunctiva, and the consequences following them, will therefore be proper before entering into a consideration of their treatment. Before doing that, however, I will say that on account of location, direct continuity of tissue between the cornea and ocular conjunctiva, and the constant apposition of the palpebral conjunctiva with the cornea, these membranes are usually both involved in all burns of any consequence, hence in this paper the cornea will be included in the consideration of burns of this region.

Railroad employees, from the diversity of their work, take in nearly all the trades known to mechanics, and consequently are liable to any or all of the accidents common to men engaged in these pursuits and, among other injuries, burns of the conjunctiva and cornea are very common and arise from many different causes.

Among the most common agents are molten metals as iron, lead and Babbitt metals; hot metals (not melted) in the shape of scales or chips of iron, chemicals either alkalin or acid, gunpowder in many forms, hot water, steam, hot ashes, hot cinders, in fact anything possessing the requisite amount of heat or caustic properties and coming in contact with the conjunctiva or cornea. On account of the quick closing of the lids, when danger approaches the eye, only a small portion of molten metal usually reaches the conjunctiva. Be this amount large or small, unless it has become so cooled in transit as to prevent, it is immediately spread out over the anterior surface of the eyeball by the tight gripping of the lids which the sufferer is unable to prevent. While this spreading of the hot metal increases its surface, and the extent of the injury, by its allowing quicker cooling of the foreign body, it diminishes the depth to which the destruction of tissue extends. Molten metal flying some distance before striking the conjunctiva, may become cooled and hardened sufficiently to retain its shape and yet be possessed of enough heat to produce a burn capable of bringing about the most disastrous results.

The burns from scales and chips of hot iron are usually more limited in extent than from liquid metal, but often extend to as great a depth. The most common among chemic caustics is lime in some form, usually in the shape of mortar, though I have seen a number of injuries from dry pulverized lime being blown or thrown into the eye, and quite recently have seen a case where one eye was destroyed and the other seriously burned by the lime in a so-called whitewash mixture. This accident happened in one of the Union Pacific shops where three of the employees were whitewashing with a steam apparatus used for this purpose. One of the pipes burst, throwing the lime into the eyes of all the men around the machine at the time, but destroying only one eye, as above stated. The burns received by the other men, though painful, involved only the superficial layer of the cornea and were not serious.

Of the acid caustics strong sulphuric, nitric, muriatic and nitro-muriatic acids are the most common. A very small drop of either received in the conjunctival sac is capable of producing very serious consequences to both cornea and conjunctiva, before it loses its destructive power from dilution by mixing with the fluids of the conjunctival sac.

Powder in all of its forms, from the common black gunpowder to the most powerful nitros, are used in different ways by the men in the employ of the railroads, and accidents of all kinds arise from the careless handling of them. Burns from this cause range all the way from the slightest injury of the conjunctiva or cornea to the complete destruction of both these membranes.

Whatever the agent in the case may be, the amount of damage done and the results to be expected to follow will depend upon the location, extent of surface over which, and the depth to which the destructive process has extended. If the injury implicates the cornea the damage to vision will depend upon the depth and location of the burn, as if it extends deeper than the epithelial layer a scar is sure to be left whatever the treatment may be. If the injury be small and situated in the center of the cornea great damage to vision will be done, and if of large size—involving all or nearly all of the surface of the cornea—the vision will not only be lost but the extent of the scar will preclude its restoration afterward by any operation. The burns situated in the conjunctiva are not of so much importance, if the destruction be confined to either the ocular or palpebral portion alone, but as this rarely happens where the wound is at all extensive, we usually have to deal with two raw surfaces constantly in apposition. The result of the healing process in these cases is the more or less close and extensive union of the lid and eyeball, and in some cases the union is so extensive as to entirely destroy the conjunctival sac.

From this hasty review of the cause, effects and final results of these injuries, it becomes apparent that a rational treatment, to meet all conditions, should be divided into three stages; the care of the injury itself, the management of the healing process, and operations for the correction of bad results. The first would include the time from the receipt of the injury through the first few days following, until the dead tissue has all separated and sloughed away. The second stage would extend from the end of the first period to the point where the healing process has been entirely completed, and the third and last would be after the completion of the second stage when the skill of the surgeon may be called upon to remove or rectify the results of the injury, or of the healing process, or of both.

The treatment in the first stage will include the checking or relieving the pain, the removal of the foreign substance, and the cleansing and dressing of the injured parts.

Relieving the pain is purposely put before the removal of the cause in these cases, for the reason that it is almost impossible to even examine a patient suffering from these injuries, let alone the removal of foreign material from their eyes, before the pain is relieved. With many patients, and in the less severe cases, cocain applied locally will be found a very effective remedy in relieving the pain, so that the further steps of treatment in the first stage can be proceeded with without hindrance, but in severe cases and with the more timid patients a general anesthetic, as chloroform or ether, will be found necessary. While under the influence of the anesthetic the injured parts should be carefully examined and everything of a foreign nature removed. If the burn be caused by any of the metals, or lime, all small particles should be carefully sought out and removed, and this is sometimes a very slow and tedious process where many small particles are embedded in the substance of the conjunctiva or cornea or both, but this part of the work must be thoroughly done, for the minutest portion of foreign substance left will certainly act as an irritant and increase the amount of inflammation and ulceration to follow. After every particle that can be found has been removed, the conjunctival sac should be freely washed out with some aseptic fluid, one of the best of which is sterilized water, either pure or with the addition of boric acid. When the cause of the burn is some liquid substance, thorough washing will be sufficient unless the agent be an acid and the patient seen very soon after, or at the time of the injury, when a weak alkali added to the water would no doubt be of some service in neutralizing the acid remaining in the conjunctival sac.

In dressing these wounds, after cleansing, the chief principle observed in the dressing of burns in other parts of the body should be observed; that is, the exclusion of air. Burns in this locality are very favorably situated for the carrying out of this principle, as the mere closing of the lids does this pretty effectually. Although the lids are of service in this respect they are capable of causing much damage in other ways. The continual rubbing of the palpebral conjunctiva on the cornea or the ocular conjunctiva, in winking, would seriously interfere with the healing of any broken surface on either. To obviate this difficulty, as well as to add further protection from air, a light compress of borated cotton and a gauze bandage should be applied. Before applying the bandage a little vaselin, olive or castor oil, should be dropped into the conjunctival sac to act as a lubricant, and also to separate the broken surfaces to a greater or less extent. Of these agents, I find the castor oil is the most bland and the least easily absorbed.

If the burn is extensive and the cornea involved, atropia should be added to the oil, both for its effect on the cornea and to prevent or subdue the iritis which is pretty sure to follow any severe burn of the cornea. The dressing can be removed and the drops repeated every four or five hours as needed, and at such times all pus and sloughs should be wiped away with pledgets of cotton soaked in saturated solution of boric acid. For the first forty-eight hours after the receipt of the injury, I have found a small bag of broken ice applied over the bandage, the greater part of the time, to be

of the greatest service in limiting both the swelling and the inflammation. To control the pain following these burns, a hypodermic injection of morphia or morphia by the mouth should be given. No reliance can be put on cocain as recommended by some writers for this purpose. The careful cleansing with aseptic lotions, and the complete rest procured for both the lids and the eye itself by the use of the bandage, and the atropia and application of the ice-bag, comprise about all that can be done to check the inflammation, limit the ulcerative process so liable to follow or attend the sloughing of the dead portions of cornea or conjunctiva, and hasten the beginning of the second or healing stage.

With the beginning of the second stage the treatment changes to a considerable extent, as the objects to be attained here are very different from those in the first stage. Here we desire to hasten the healing process, check further destruction of tissue by ulceration and prevent as far as possible the formation of adhesions between the lids and eyeball. The use of the bandage should be continued, as well as the oil and the careful cleansing of the granulating surfaces. Just how much can be done to prevent the formation of adhesions is something of a problem.

My own experience in these cases, and I have seen many of them, has taught me to believe that little good is accomplished by any of the methods given in the text-books to prevent this dreaded result, except in the cases where the burned surface is not large or is situated near the margin of the lids. In these mild cases the breaking up of the adhesions by passing a strabismus hook around them and forcibly separating the adhering surfaces at each dressing has, in several cases that have come under my care been of great benefit, in some cases preventing union entirely and in others making the uniting band so small as to be very easily removed by operative procedures afterward. Of late, however, I have adopted a plan that in my hands brings about much quicker and better results than any that I have seen advocated. It may have been used by many others before me, but if so I have failed to find any mention of it in print. This plan consists in treating the burns in the ocular conjunctiva, (at the end of the first stage) the same as any other wound causing a solution of continuity of that membrane would be treated, that is, separating the conjunctiva from the sclera round about the burn to an extent sufficient to allow of the bringing of the edges of the conjunctiva together and uniting them with stitches. The unbroken surface presented by the shifted portion of the ocular conjunctiva prevents any union between that and the denuded surface of the palpebral portion of that membrane, which is then left to itself to heal by granulation. The loose connection between the conjunctiva and sclera allows of very great displacement of this membrane and one is often astonished at the size of the wounds that can be covered in the way above mentioned. Time and trouble are saved to both patient and surgeon, and fully as good if not better results obtained than would be by following the old rule of letting the adhesions form and then removing them by plastic operations.

In cases where the amount of conjunctival tissue destroyed is so great that the above method can not be used, I have for some time been in the habit of employing skin grafts to cover the denuded surface not, as suggested by text-books, at the *end* of the healing stage, but at the *beginning*. As soon as the dead tissue is cleared away, the conjunctival sac is thoroughly cleansed with warm boric acid solution and Thiersch's flaps or grafts applied to the raw surface. The compress and bandage are then re-applied and left undisturbed for twenty-four hours when the dressing is carefully removed and the lids separated sufficiently to allow the escape of whatever fluid may have collected in the conjunctival sac.

As every one knows who has tried skin grafting in this region, the chief cause of failure is in the amount of moisture or secretion that collects in the conjunctival sac. This is less at the beginning of the second stage than later, when the denuded surface is covered with more luxuriant granulations, hence the propriety of using the grafts as early as possible.

If the first set of grafts die wholly, or in part, another attempt should be made with as little delay as possible. By freshening the granulating surface, (by scraping) these attempts can be repeated until success crowns the effort, or the healing process shuts out any further opportunity.

In many of these cases the grafting will prove successful and the formation of adhesions be prevented, but in those cases where this part of the treatment proves a failure it leaves the conditions no worse for the third stage than they would otherwise have been.

The treatment in the third or last stage aims at the correction of the defects produced by the injury or the healing process following. These conditions may be such as to call for an enucleation to stop the constant irritation caused by adhesions between lids and eyeball, or to prevent sympathetic trouble where the burn has involved the deeper structures of the eye; an amputation of the anterior part of the globe so that a shell can be worn to cover up unsightly scars: an iridectomy to improve vision; a plastic operation to remove adhesion between eyeball and lids or between the lids themselves; or for an operation to correct an entropion. In these cases each individual one is a study in itself and no certain rules can be laid down for their management. The skillful operator can here have his ability and patience tried to the utmost, and then after bringing all known resources into use may still score a failure. But with patience and perseverance in the performance of whatever operation the particular case in hand may call for, the results in many cases are sufficiently good to satisfy both the patient and surgeon.

Even if the vision of the injured eye is lost, many dollars can be saved the railroad company, and the patient himself be much better satisfied, if a fair *appearing* result can be obtained. Nothing enlists the sympathy of the jury more, and consequently increases the amount of damages awarded, than an unsightly appearance presented by the complainant. For the benefit of both the patient and the company that foots the bill, as well as for his own reputation, the railway surgeon should treat these cases with patience and perseverance, even when no benefit except from a cosmetic point of view can be expected.

DISCUSSION.

DR. PECK—In connection with this paper I desire to report a case which was interesting to me, and one which I consider unique. The case was that of a miner who was standing directly in front of an exploded dynamite charge, and received the full force of the explosion in his face and upper extremities. Both hands were burnt off to the wrists, and there were serious burns on the face, head and eyes. As a result of the burns of the cornea, there was extensive sloughing of both corneæ and in one of them there was perforation with disorganization and extrusion of the lens and escape of both aqueous and vitreous, so that when I dressed his eyes one day, I found the entire anterior segment of the eyeball inverted in a conical or funnel shape. To my surprise, after a few days the perforating ulcer healed, the contents of the eyeball filled out again to its normal shape or nearly so, and the man had perception of light with that eye.

DR. HARNDEN—I have received a good deal of comfort from this paper, for the reason that some years ago in a plastic operation of the face for a burn, there was cicatricial contraction, and I adopted a measure for which I received a great amount of censure from some of my confrerés. I stitched the lids of the eye together, and I stitched the upper lip down to the chin, drawing them down by sutures, and to my surprise there was cicatrization. I did a plastic operation which healed without the usual contraction, but I made incisions, separated and dissected out the tissues, leaving a pedicle, and the sutures held the lid which had been drawn down to an unsightly condition, and the upper lip having broadened out to the margin of the ala of the nose, great deformity was prevented. The man was a banker, and with the exception of a false mustache which he has to wear on that side to match the other side, you would scarcely notice that he had been so seriously burned. Compared with the deformity he had, it was a great improvement. I was blamed for doing this operation, as it was considered by some an unprofessional act.

(To be continued.)

The Forty-sixth Annual Session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

Louisville Academy of Medicine.

The regular meeting of the Academy was held Monday evening, March 4, Dr. W. L. Rodman in the chair.

DR. I. N. BLOOM—I wish to report three cases of interest. A gentleman was sent me by an oculist three months ago with request to examine him for suspected syphilis. There was an ulceration on one tonsil, which had not progressed for four weeks, and the examination was requested with the hope that I could elicit symptoms which would show the ulcer to be the result of secondary syphilis. On stripping the patient nothing was found, and I telephoned that I could find nothing indicative of syphilis. The history was perfect; he stated that three months had elapsed between the last intercourse and the appearance of the trouble. The oculist was satisfied with the examination, and later discharged him. I examined again in a week with negative result.

This gentleman went to Philadelphia, saw a throat specialist and his diagnosis was chancre of the tonsils. On last Friday another oculist was in my office in search of some literature on chancre of the tonsil. I told him of the case I had seen in my practice four days before, and at that time a physician's card was on my table, who had called to consult me, but whom I had not seen on account of illness. This physician had a chancre of his tonsil. The oculist had not left my office more than an hour when the first patient returned and detailed the history of the development of the chancre in Philadelphia. A general outbreak occurred; there was a macular exanthem and general glandular enlargement, but when I examined him there was, except for slight cervical enlargement, no enlargement of the glands.

I was consulted by an actor who had a macular eruption and a chancre of the tonsil. He had a maculo-papular syphilide. In these cases the cause of the trouble was looked for. In women the bestial habit is the most common cause.

The gentleman who went to Philadelphia is entirely reputable, and the only tracable cause is from smoking a cigar or pipe, or drinking from an infected glass.

The possible cause in the actor, which, however, is of little scientific value, is given by him as follows: In his part in the play he impersonates a tramp, and steals a cigar from another actor and smokes it. Now the actor who first smoked the cigar had lost his hair and there were sores on his head. Actors are a class of people who are well versed in the common symptoms of these troubles. I merely offer this as a possible source of infection. The statistics which I looked up for the physician who came to me in quest of them, I remember generally without remembering them in detail, but I know chancre of the tonsil is sufficiently rare for me to report these cases which I saw in so short a time.

DR. LOUIS FRANK—As to the possibilities of infection I saw one of these cases, that of the physician, and am absolutely sure that his word can be relied upon. There is no possible way that it could be contracted from a prostitute. He practices in the country and knows of but one case of syphilis in the surrounding country and he had not seen that one for some time. The possibility is that the infection occurred from a cigar. The chancre had existed for three weeks before coming to the city. The glandular enlargement was considerable.

DR. WATHEN—I would like to ask Dr. Bloom if he can positively diagnose a primary from a secondary sore when it is situated on the tonsil.

DR. BLOOM—I failed utterly in the first case mentioned; the oculist who saw him first tried to establish a past syphilis with secondary development on the tonsil. The results show that it was a primary lesion. The young man had positively no sore on his body before going to Philadelphia.

DR. FRANK—I would further state that the doctor whose case has been reported, was seen by six and possibly seven physicians, and without asking a single question the diagnosis was made.

DR. BLOOM—But in the case alluded to there was present the secondary eruption which assisted in the diagnosis.

DR. LOUIS FRANK—I wish to report a case which shows the difficulty to be met with in the diagnosis of appendicitis, in the person of a patient at the City Hospital a week ago. The patient was admitted two or three days previously in a critical condition, with a temperature of 103 degrees, and the diagnosis was made by the resident staff, of appendicitis. When admitted to the medical ward she had a rapid pulse, and a temperature of 103 degrees, distension, and dullness over the right iliac fossa. She denied uterine or venereal disease. When first seen she was in a condition of shock, her abdomen was distended, due to rupture of something in the abdominal cavity. She rallied somewhat under treatment and an operation was done. A median incision was made, and the belly was filled with pus, fully two quarts, which was most abundant in the pelvic cavity,—especially in the right iliac fossa, which pointed to a rupture having taken place here. The colon was bound down by a mass of adhesions. The pain had radiated from the right hip to the umbilicus. (This should have been mentioned earlier.) She died fourteen hours after the operation. At the autopsy the condition was found to be a ruptured tubo-ovarian abscess, at the junction of the tube and uterus. Both tubes were filled with pus, and the adhesions were not very dense. There was not very much pus in the uterus. Before operation the diagnosis of some pelvic trouble was made out by examination. There was present on the posterior vaginal wall a large chancroidal ulcer. Cultures made from the pus in the abdominal, pelvic and uterine cavities were found to contain the staphylococcus pyogenes aureus.

DR. MCDERMOTT—The absence of pain in the case reported recalls a case of appendicitis which occurred in my practice. The patient, a robust man, was sick three or four days, and the physician, temporarily in attendance, had thought it a case of pyelitis or typhoid fever. I found a tumor in the region of the appendix and thought there was appendicitis. Dr. Roberts was called in consultation. The patient had had malaise, chills and a fever of 100 degrees. When I saw him his pulse was 110, his features composed; I prescribed tablets of morphia 1-6 grain with 1-150 of atropia, and only one was taken. He lay with his limbs flexed, as these cases generally do. He died in five days, having had a comfortable night before he died. This case staggers me, and I feel more like advocating operative procedures in the future. The autopsy showed pus in profusion but no general peritonitis; there was sepsis without pain or rigors. In all the other cases I have seen, the pain has been one of the most prominent landmarks; and the tumor has been well marked. In this case the appendix had sloughed off and could not be found. Operation had been considered each day but the condition did not seem to warrant it, as all indications pointed to a rupture in the bowel.

DR. FRANK—I would add that in the case in which I performed necropsy, the head of the colon was found displaced higher up than the umbilicus, the appendix up and behind, embedded in adhesions, was between one and two inches long.

DR. WATHEN—On several occasions I have protested against indiscriminate operations. I have been considered, from my reported discussions and from my writings, a conservative surgeon. The neglect and delay in operating upon the two reported cases indicates that doctors are sometimes too slow in deciding that an operation should be done. In Dr. Frank's case, if the patient had been examined when the pelvic symptoms first presented themselves, the pus tubes would have been detected, the operation for their removal done, and the woman might have recovered. She was not referred to the abdominal surgeon; she went on in ignorance of her condition until too late for relief. Dr. McDermott's case, to my mind, presented subjective and objective symptoms which suggested laparotomy, and had it been done soon after the tumor was noticed, it probably would have been successful. There is no doubt that too much operating is being done for appendicitis, and there are cases not operated on which should be. Studying the cases from the standpoint of the radical who is always ready to operate, and from the conservative, who perhaps waits too long, the happy medium is the correct one. The physician who operates on every case, and the one who never operates should be criticised. In all cases where there are symptoms indicating appendicitis, a consultation should be had with one who is doing this work. When no tumor is detected it is difficult oftentimes to make a diagnosis. When a tumor is outlined in the region of the appendix, occurring with a rapid pulse and temperature between 103 and 104, an operation should be done and the appendix or accumulation of pus evacuated, but many cases should be operated on even when there is no tumor.

DR. H. M. GOODMAN—I have heard many discussions on both sides of this subject, but can not get any clear indications as to the time operative procedures are demanded. Dr. Wathen, speaking of the operation being indicated when there is a tumor, recalls to my mind the case of a young lady—about two years ago,—which occurred soon after a case I

had in which Dr. Vance was associated with me, and in which the appendix sloughed off and an abscess formed; there was an opening in his back, abscess discharged, and the man recovered. The young lady's history is as follows: It was a sudden attack with pain over the appendicular region, and a fever of 100 to 101 degrees. Examination showed that about the region of the appendix there was a line of marked tenderness, the tumor being the size of two fists. I strongly advised an operation, but the family protested; medical treatment consisting of salines and sufficient opium to control pain, diet and frequent poultices, was carried out. In thirteen days an irritative diarrhea developed, which was due to the pus discharging in the bowel. The important point is, When do these cases cease to be medical and when do they become surgical? We may represent the case as cured by operation, but it perhaps would have gotten well without it.

Dr. J. L. Howard—It is my opinion there is not enough operating done in appendicitis. Whenever the diagnosis is made the operation should be done. I know that if I had an attack of even catarrhal appendicitis I would have the appendix removed; there is no harm done, the operation is simple and almost devoid of danger; but if the surgeon is not called in until the patient is in collapse we do an injury to the good name of surgery by operating then, and run the risk of lowering our statistics.

Dr. Wm. Bailey—I have said so much on this subject already that I hardly know what to say. Each time that I see cases I am in dread that they will die without a surgeon, yet many get well without a surgeon. I confess I do not know what to do. In the large majority of the cases which we see and in which the diagnosis is made, a tumor shows. But I do not want to say anything more about when they are surgical and when medical. I do not know.

Dr. J. B. Bullitt—I am not quite so modest as Dr. Bailey, for I do want to say something on the subject under discussion. Fowler, in his excellent monograph on this subject, says that in the majority of cases in which a surgeon is *prescribed*, the surgeon labors under a disadvantage by being called too late. He should be called early and watch the progress of the case. There should be no question as to when the trouble ceases to be medical; it is always surgical. There is no such thing as a medical case of appendicitis. Oftentimes when the surgeon casts about in his own mind as to when a case should be operated on he is at sea; but each case should be one unto itself. The most dangerous are those cases with a falling temperature and a high pulse rate.

Dr. W. F. Boggess—The general practitioner seems to be in the minority here to-night. I, for one, am not a believer in indiscriminate operations upon cases of appendicitis. As I sat here this evening, I could recall nine cases of appendicitis occurring in my practice; six cases were not operated on and got well, three cases were operated on and of these three, two died. One of the cases was a young man of 20 years. There was a tumor present the size of a goose egg. He had a septic tongue, temperature of 104 degrees, pulse 140, and I asked Dr. Dugan to see him with me. It was then late and he made arrangements to operate in the morning. The next morning the temperature was 100 degrees, pulse 96, the tumor gone, and the pus discharging through the bowel. There is too much operating on appendicitis, and I do not agree with the statement made that cases should be operated on as soon as diagnosed. And I believe that there were fewer cases long ago, who died from peritonitis and perityphlitis than die now from appendicitis, even though operated upon.

Dr. Vance—I believe that the physician can not tell, if patients get well, whether they have had appendicitis or not.

Dr. Schachner—All appendicitis cases are surgical, but it is impossible to lay down any certain rules as to when an operation should be done, and for this reason the surgeon should be constantly in attendance to determine the point when the operation should be done.

Dr. Frank—The general practitioner has as much right to assume that he has a case of appendicitis as the surgeon. The cases operated on are cases of recurring appendicitis, as a rule. When pus is present we should operate, not wait until it ruptures into the bowel. It is criminal to wait till this occurs. I believe, however, that appendicitis is surgical.

Dr. McDermott—I am sorry that I precipitated this discussion by the few remarks I made, but I merely want to say that cases of appendicitis, as a rule, are found by the doctor long before the surgeon sees them. The cases of appendicitis which occur are those which had diffuse peritonitis from the beginning.

The paper of the evening was read by Dr. Aug. Schachner, on "The Murphy Button; an Unsuccessful Case of Cholecystduodenostomy."

SOCIETY NEWS.

The Kentucky State Medical Society have issued the following circular:—The fortieth annual meeting of the Kentucky State Medical Society will be held in Harrodsburg, beginning Wednesday and continuing Thursday and Friday, June 12, 13 and 14, 1895. We desire a large attendance and a full program. Harrodsburg, the oldest town in the State, will not be outdone by any of her sister towns who have entertained the Society. The Committee of Arrangements will do all in their power to make the fortieth annual meeting the most popular and successful one in the history of the Society. Reduced railroad and hotel rates will be secured. We invite every member to attend, and bring with him an applicant for membership. Our location is central and easily reached by rail from all parts of the State. Address Dr. Steele Bailey, of Stanford, Ky., Permanent Secretary, for further information. E. M. Wiley, M.D., Chairman Committee of Arrangements.

Tri-State Medical Society of Iowa, Illinois and Missouri.—Preliminary announcement and program. The next meeting will be held in St. Louis, April 2, 3 and 4, 1895.

Officers: President, Dr. James Moores Ball, St. Louis; Senior Vice-President, Dr. Bayard Holmes, Chicago; Junior Vice-President, Dr. L. A. Malone, Jacksonville, Ill.; Treasurer, Dr. Charles S. Chase, Waterloo, Iowa; Secretary, Dr. Frank P. Norbury, Jacksonville, Ill.

Committee of Arrangements: Drs. W. B. Outten, George W. Cale, H. W. Loeb, A. J. Steele, E. H. Gregory, C. H. Hughes, J. H. McIntyre and James A. Close.

The Secretary announces the following papers:

Medical Evils, W. R. Allison, Peoria, Ill.; The Influence of Malaria in Rhinological and Laryngeal Work, J. R. Ash, Brighton, Ill.; The Open-Air Treatment of Consumption, Robert H. Babcock, Chicago; President's Address: The Anatomical Renascence, James Moores Ball, St. Louis; Use of the Lever in Club-Foot, C. W. Barrier, St. Louis; Treatment of Trachoma and Trachoma Sequelæ, Charles H. Beard, Chicago; Tuberculosis of Bones, D. C. Brockman, Ottumwa, Iowa; The Uterine Sound and Curette, W. M. Catto, Decatur, Ill.; The Treatment of Functional Dyspepsia, J. M. G. Carter, Waukegan, Ill.; Address: Recent Advances in Therapeutics, David Cerna, Galveston, Texas; Food Adulteration—Its Cause and Prevention, Charles S. Chase, Waterloo, Iowa; Report of a Herniotomy, J. J. Conner, Pana, Ill.; Inflammation of the Anal Canal, George J. Cook, Indianapolis, Ind.; Diagnosis of Intra-Abdominal and Pelvic Pathologic Conditions, A. H. Cordier, Kansas City; What is Scrofula? A. C. Corr, Carlinville, Ill.; Study of a Family of Four Degenerate Children, Richard Dewey, Chicago; Injuries to the Pelvic Floor, F. B. Dorsey, Keokuk, Iowa; Pleurisy with Effusion, H. C. Eschbach, Albia, Iowa; Pathology and Treatment of Appendicitis, A. H. Ferguson, Chicago; Treatment of Stricture of the Rectum, S. G. Gant, Kansas City; Parasitic Nature of Cancer, Heneage Gibbes, Ann Arbor; Mucocele of the Frontal Sinus, W. E. Guthrie, Bloomington, Ill.; Rabies, H. A. S. Hartley, Keokuk, Iowa; Some Forms of Mastoid Operation, R. C. Heflebower, Cincinnati; Indications for Laparotomy, W. O. Henry, Omaha, Neb.; Some Thoughts on Elimination, T. E. Holland, Hot Springs, Ark.; Osteal Tuberculosis Without Arthritis, Bayard Holmes, Chicago; The Economics and Ethics of Reproduction, W. Hutchinson, Des Moines, Iowa; Nocturnal Pollutions and Spermatorrhea, Henry Jacobson, St. Louis; When Shall We Amputate? Webb J. Kelly, Galion, Ohio; Professor W. W. Keen, of Philadelphia, will hold a surgical clinic; Brain Tumor and its Surgical Treatment, Emory Lanphear, St. Louis; Ununited Fractures and Bone Lesions, E. R. Lewis, Kansas City; To Spray or Not to Spray, H. W. Loeb, St. Louis; Excision of the Rectum vs. Colotomy, J. M. Mathews, Louisville; Excision of the Elbow-Joint in Children, Samuel E. Milliken, New York: Address on Medi-

cine; The Relation of Infection to the Nervous System, H. N. Moyer, Chicago; Electrotherapy of Sexual Neurasthenia, F. P. Norbury, Jacksonville, Ill.; Professor Charles A. Oliver, of Philadelphia, will hold an ophthalmic clinic; Hysteria and Organic Disease of the Nervous System, Hugh T. Patrick, Chicago; Gastric Neuroses; Their Diagnosis and Treatment, H. E. Pearse, Kansas City; Puerperal Eclampsia, A. D. Price, Harrodsburg, Ky.; The Stigmata of Nervous Diseases and Their Utility in Diagnosis, John Punton, Kansas City; (a) Epilepsy—Removal of Cerebral Cyst; (b) Typhoid Ulcer, Perforation, Operation, Merrill B. Ricketts, Cincinnati; Address on Gynecology; Observations in the Peritoneum in Fifty Autopsies, F. Byron Robinson, Chicago: Ophthalmia Neonatorum, E. Orrin Sisson, Keokuk, Iowa; A Clinical Report on Thyroid Extract, Edwin Walker, Evansville, Ind.; Narcophilia, W. F. Waugh, Chicago; Treatment of Chronic Suppurative Middle Ear Disease, M. F. Weymann, St. Joseph; Tumors of the Eyeball, with Specimens, Wm. H. Wilder, Chicago; The Hysterical Element in Joint Diseases, Wm. E. Wirt, Cleveland, Ohio; Address on Surgery, John A. Wyeth, New York.

The sessions will be held in the Planters' Hotel. Reduced rates will be given on all railroads. Gentlemen should secure certificates from the local agent. An elegant banquet will be tendered the visiting doctors by the medical men of St. Louis. Remember the date, April 2, 3 and 4, 1895. Come early and stay late.

SELECTIONS.

Treatment of Favus With Heat.—Culture experiments have shown that a temperature of 45 to 50 degrees destroyed favus fungus. This fact has been applied in the treatment of four cases of favus. A compress of sublimate of gauze (1-4000) was placed on the head and over this double current coils of tin tubing, through which water at about 50 degrees was continuously passed. In three cases recovery resulted in eight to fourteen days.—*Archiv. für Dermatologie u. Syphilis in Centralblatt für innere Medecin.*

Laceration of the Liver.—The *Province Med.*, 1894, No. 46, recounts the fall of a bricklayer from a staging 2 m. high and his striking, in the region of the liver, against the rim of a mortar bucket. After comparative recovery from the first shock, he died on the following day, after an attempt to leave the bed to go to stool. On the post-mortem an enormous laceration was found, 17 cm. long and 7 cm. deep, which had almost severed the lower portion of the right lobe.—*Centralblatt für Chirurgie.*

Operative Removal of a Tumor from the Neck of a New-born Infant.—An infant was brought in with severe dyspnea and cyanosis, the cause of which proved to be a large tumor which was situated on the anterior surface of the neck and which as a vast struma interfered with the air passages. The swelling, which was larger than a hen's egg, appeared hard and firm, rough and nodular, and extended from the chin even under the sternum. It was covered with integument (which was movable) fascia, and the superficial muscles of the neck, and embraced the hyoid, larynx and trachea on the anterior surface. On account of the poor prognosis that would attend a simple tracheotomy in so young a child, and because this operation could hardly be accomplished alone from the extent of the tumor, the whole mass was removed without anesthesia, yet not without considerable hemorrhage. A part of the thyroid was left. After the operation the respiration was at once free and the child cried aloud. The course of the wound was favorable. On section the tumor was shown to be solid with many small pin-head to pea-sized cysts. Under the microscope there were found in the midst of a connective tissue, vascular and rich in nuclei, solid and hollow epithelial plugs and cysts lined with cylindrical epithelium. The presence of undoubted cartilage was striking. The tumor was regarded as congenital struma. Virchow in the discussion pronounced the tumor a teratoma.—*Centralblatt für Gynekologie.*

Therapeutics of Actinomycosis of the Skin.—A Staub, in the *Therapeut. Monatshefte*, October, 1893, reports the recovery of two cases of actinomycosis in which an operation was impossible. His experience with chrysarobin-resorcin, and chrysarobin-resorcin-ichthyol plasters, (with which salicylic acid was mixed), and with iodid of potash showed that actinomycotic infiltrations could be favorably influenced by anti-bacterial means. Extensive infiltrations gradually disappeared. Recent and long-standing areas showed a difference in the effect of local means, the former reacting slowly, the latter with remarkable rapidity. The thickening disappeared, and the skin became pale and healthy. For the deeper parts of the skin, scarification must precede antiseptic measures, and the same is true for recent infiltrations.—*Centralblatt für innere Medecin.*

New Method of Staining Micro-organisms in the Blood.—When there are few microörganisms and especially such as do not take a distinctive color by the Gram method, there is danger of concealment in masses of red blood corpuscles. The coloring matter attacks the hemoglobin; if this is removed, then the blood corpuscles remain unstained. Let a thin layer of blood on a cover-glass dry at ordinary temperature or only slightly elevated, treat for one-half to two minutes with the following:

5 per cent aqueous solution of carbolic acid	6.
Saturated solution Na Cl	30.
Glycerin	30.

Filter.

This fluid frees the hemoglobin, does not change the form of the red corpuscles and makes no deposit. Pour off, wash in distilled water and stain with carbol methyl blue to which 1 to 2 per cent. of aqueous solution of methyl violet is added. This method is also useful in demonstrating plasmodium malariæ.—*Gazette Med. de Paris.*

The Regulation of the Diet in Chronic Affections of the Heart.—(Glax in *Internationale Klin. Rundschau.*) As far back as 1880 he had alluded to the favorable effect from strict limitation in ingestion of fluids in the treatment of chronic heart disease. Four years later, Oertel's book on the therapy of disturbances of the circulation appeared, in which, as well, deprivation of fluids was maintained. In two very instructive works on clinical medicine, Glax has summed up his experiences of many years in these two statements: The restriction of the ingestion of fluids is one of the most powerful measures in the treatment of chronic heart diseases, and alone is often sufficient to bring about compensation. In many cases, in which the strength of the heart is already compromised, its efficiency is renewed, as soon as the ingested fluids are regulated to correspond with the excretions.—*Centralblatt für innere Medecin.*

Actinomycosis in the German Army.—Düms in the *Deutsche militärärztl. Zeitschrift* states that only seven cases have been reported up to 1890, six in 1884–88 and one in 1888–89. Four of these were of undoubted oral origin, two appeared as inflammation of the lower jaw, and two as parotitis. All these patients became disabled for service. In the three other cases an entrance was effected in other ways, one apparently through the skin in the axilla, one by the lungs (mixed infection with tubercle), one by the abdominal cavity, breaking through into the right lung.

The writer adds three hitherto unpublished cases, one of the lungs resulting in death, two of the jaw; both recovered and remaining well until now, a lapse of three years. It is to be specially noted that in the last two cases the microscopic investigations were made by Karg, and that, in both, he found a variety different from the usual cladothrix form of Bostrom, and resembling the form described by Hesse in the *Deutsche Zeitschrift für Chirurgie*, 1890. The threads were thicker and longer; the usual culture procedures were unsuccessful. Finally, he succeeded in growing a whitish gray colony of clouded cladothrix threads on a blood-serum agar plate, which had been kept in an atmosphere of hydrogen at broad temperature. It was therefore a cladothrix form, difficult to cultivate out of a living body, and anærobic. The successful treatment consisted in curetting the abscess, and irrigating with sublimate and boro-salicylic solutions. The relative rarity in the army is decidedly striking.—*Centralblatt für Chirurgie.*

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SATURDAY, MARCH 16, 1895.

LEGIBLE HAND WRITING.

"A damn'd cramp piece of penmanship, as ever I saw in my life. I can read your print hand very well. But here there are such handles, shanks and dashes that one can scarce tell the head from the tail. . . . It's very odd I can read the outside of my letters where my own name is well enough. But when I come to open it, it's all—buz. That's hard, very hard; for the inside of the letter is always the cream of the correspondence."—*She Stoops to Conquer.*

We sincerely hope that none of our readers will regard this particular quotation as personal, but we are warned by experience that it is extremely easy to give offense where none was intended, and therefore we premise that the reflections are directed solely to those who write for the scientific press generally and for the dispensing pharmacist as a daily occupation. We sometimes imagine, as we have now and then caught a glimpse of a manuscript (in the office of some other medical journal) that we were fast returning to the customs anterior to the days of CADMUS and EUROPA, when men wrote their epistles in hieroglyphics, with thick ink.

Ideographism represents a picture of the object the idea of which is to be conveyed, or a symbol which by consent represents the object. This differs from Phonetism which seeks by arbitrary letters to represent the sounds of a spoken language, and which in conveyance of the idea leaves less to the imagination.

It is therefore somewhat in the nature of an appeal (in behalf of the management of other journals) that the ideograph be relegated to the Egyptologists along with the bones of the antediluvians who used pictures instead of writing when they wished to convey either instruction, sentiment or emotion to their fellow men. When we attempt to read an article written in hieroglyphics we are much embarrassed, for we think of many things a given hieroglyph may represent, and if the author is a plain matter-of-fact scientist, he may become angry when he is represented in clear but modern type as saying something quite different from what he would have said, had he used the more common characters of the alphabet. A lively imagination, then, in the translation of hieroglyphs, is to be held severely in check, if either the peace of mind of the translator or the choler of the author are considered.

When the unimaginative drug clerk attempts the compounding of a prescription written in hieroglyph, there is little trouble, for as he is a man of one idea he fills the prescription on that basis, but as there is many a "mute inglorious MILTON" engaged in ordinary pursuits, so the prescription writer in hieroglyph may find to his sorrow when the medicine is delivered that he has to administer a witches' broth as hot as the good DOMINIE SAMPSON was forced to swallow from the ladle of MEG MERILLIES, or a poison as potent as those used in the days of the DE MEDICI.

Even more unfortunate are those extremely busy men who, although using the characters of the common alphabet when writing an article, forget to add a part of the letter or the last part or syllable of the word; for the hieroglyph did mean something if one only knew what it was, whereas the blank represents only vacancy—mere space—which may be filled by anything.

It is not necessary in conveyance of ideas by writing, that one be artistic, although to their credit be it said that there are many physicians whose handwriting is beautiful in its clearness, graceful curves and delicate tracery; but careful and close adherence to the accepted forms of the letters will, in the long run, be the surest way to prevent misunderstanding and accidents, and if by nature one can not acquire the necessary handicraft, he should use the typewriting machine or employ some one to use it in the translation of his manuscript.

We were moved to this excursus apart from the field of medicine, by the reception of an extremely ill-natured anonymous communication reflecting upon the manner of a foot note appended to the letter of a valued correspondent. In that foot note we pointed a moral really addressed to the whole medical division of the great Republic of Letters.

THE FIFTY-THIRD CONGRESS, THE ARMY AND NAVY MEDICAL SERVICES AND THE MARINE-HOSPITAL SERVICE.

The Medical Department of the Army is in an efficient condition. Its officers have the rank, pay and emoluments of other officers of like grade. They exercise command in their hospitals and over Hospital Corps detachments, and have control of their medical and hospital supplies. The Department asked for nothing from the Fifty-third Congress but to have money appropriated for its current expenses. Its

estimates, however, were pared down considerably in both years. Instead of $185,000 estimated for the year ending June 30, 1895, and $175,000 for the following year, the appropriation bills carried only $160,000 in both instances. The estimate of $10,000 for the Library was cut to $8,000; but the appropriations for the publication of the Index Catalogue and for the Army Medical Museum were approved without reduction.

In the first session a bill was introduced which would have seriously crippled the Corps by reducing its number in those grades which are the rewards for long and faithful service; but as passed and approved, the bill merely prevented the appointment of young men to fill vacancies until the number of assistant surgeons became reduced from 125 to 110. This reduction was felt the less on account of the abandonment shortly afterward of nine or ten military posts; but notwithstanding this it is not unlikely that certain Army Medical officers failed to get a leave of absence this year for want of some one to take their place, and that some detachments may have to go into the field during the coming summer without competent medical attendance. The number of assistant surgeons at present on the roll is 115, so that 6 vacancies will have to occur before any new appointment can be made.

The amount, $60,000, estimated for the annual needs of the Medical Department of the Navy, was duly appropriated; but outside of this our naval confrerés have to be thankful to Congress less for what it did than for what it did not do. A bill to reorganize and increase the efficiency of the personnel of the Navy and Marine Corps was reported from the Committee on Naval Affairs with a recommendation for its adoption; but it did not get beyond this stage of its existence. This bill was intended to overcome a stasis in promotion from which the Navy has suffered more or less since the war, and to place in positions of responsibility and command, officers of the line who would otherwise have to pass the best years of their active service as subordinates. To accomplish this it was proposed to sacrifice the interests not only of the Medical and other staff corps, but even of many line officers, particularly those who saw service during the war and who now stand between the younger men and the coveted rank and position. To judge from the language of the Naval Committee's report the bill ought to have been favored by every medical officer in the service: "Comparing the present status of the Naval Medical Corps with that proposed by the bill it will be seen that the titles have been changed substantially as asked for; that positive rank has been given, and that a considerable number of officers have been given an advance in rank." Yet singularly enough the friends of the Medical Department were unanimous in their opposition to its passage, and in sympathy with their wishes this JOURNAL fought the bill to the best of its ability. The bill, however, is dead for the time being, so that it is unnecessary to dwell further on the injustice of many of its provisions.

The status of our Naval Medical Department, compared with that of the British service or with that of our own Army, is such as to cause depression of spirit in those who belong to it. When they entered in their youth they were encouraged to face existing conditions by the hope that the evolutionary processes of the age would speedily effect a satisfactory reorganization of the Corps. Such a reorganization is what the Department needs to give energy to its present membership and enable it to fill its vacancies with the highest grade of medical graduates. While the competition for place in the Army is considerable, the Navy has not been able for many years to fill its vacancies, nor will it be able to do this until a bill has been passed removing the objectionable features of its medical service. Few graduates of medicine competent to pass the Examining Boards would elect to enter the Navy with the rank of ensign or second lieutenant and a bunk in the steerage for three years, when they can enter the Army as a first lieutenant and have selection of quarters over all officers junior to them in rank. Again, the rank of each naval medical officer should be determined by his position in his own corps and not be dependent as now, on that of his co-mate in the line. The framers of the existing law appear to have considered that it would be disastrous to naval efficiency for any staff officer to be promoted to a higher grade until after the promotion of all those of the line having the same date of prior commission. In fact, by the present law, the line officer may be represented as saying to his medical shipmate: "If I can't be promoted, you sha'nt!" Medical officers of fifteen years' service are thus tied down to the rank of junior lieutenants, a grade through which the Army Medical officer passes in five years. Longevity pay, a 10 per cent. increase, granted to passed assistant engineers at the end of every five years, should be given also to the corresponding grade of the Medical Corps; and provision should be made for voluntary retirement at the end of thirty years of service.

It will be seen from what we have said, that the Naval Medical Corps requires much to give it a standing similar to that of other military medical services. Its friends should claim this for it. It is well for them to protect the Corps, as they have been doing lately, from harmful legislation, but they should not rest content with this. A bill to reorganize the Corps when brought before the Fifty-fourth Congress, should be supported by the influence of the whole of the medical profession.

The Marine-Hospital Service has fared well, although the appropriations are much less than the

estimates. The general expenses of the Service are met by permanent annual appropriations of so much of the tax on tonnage as may be necessary, and in consequence no specific appropriation is asked for this purpose.

The total appropriations for repairs and alterations of the hospitals amount to $27,700, and for repairs and alterations to quarantine stations, $15,300, and for the maintenance of the Quarantine Service, $125,000. This amount will give an ample appropriation for the efficient conduct of the Quarantine Service.

BACTERIA IN WATER.

The Third Report to the English Royal Society Water Research Committee, by PROFESSORS PERCY F. FRANKLAND and H. MARSHALL WARD, has just been received. In Part I the latter scientist reports a number of experiments on the influence of light in retarding the development of B. anthracis. The light used was the direct solar rays, reflected light and light filtered through various media, the results showing that it is the actinic end of the spectrum which is efficient. Similar experiments manifested a well marked inhibition of growth of the bacteria of Thames water and particularly of certain of the liquefying forms in the water. To the influence of sunlight is attributed an enfeeblement of the vitality of the bacteria in the summer water. In some cases it is certain that forms obtained in August, and which afterwards turned out to be identical with forms found in the winter, at first grew so feebly that their characters on the plates led one to put them down as distinct species or varieties.

Part II of the Report is a study of the behavior of the typhoid bacillus and the B. coli communis in potable waters, by PROFESSOR FRANKLAND. As bearing on the longevity of these microphites, which has been stated by different observers at from five to one hundred and eighty-eight days, the experiments reported have considerable practical value. The results obtained by KRAUS in his study of Munich waters artificially infected with the bacillus of typhoid, suggested the destruction of this bacillus at the end of a few days, coincident with the extensive multiplication of the ordinary water bacteria. FRANKLAND, however, took exception to this on account of the likelihood of overlooking the presence of the typhoid bacillus when scattered among the other colonies of the plate culture; and in his own experiments he eliminated the ordinary water bacteria by the use of PARIETTI'S phenol broth culture for the development of such typhoid or colon bacilli as might be present. His special tests for the differentiation of these were cultures in sterile milk and in ordinary gelatin peptone; the colon bacillus coagulates the milk and yields gas bubbles in the gelatin, while the typhoid bacillus gives neither of these reactions. [THEOBALD SMITH'S fermentation tube, which permits the evolved gas to be measured and analyzed, is a great improvement on the gelatin entangled bubble.] Ordinary Thames water artificially infected with typhoid was still found to contain living typhoid bacilli twenty-five days after infection; thirty-four days after infection they were no longer demonstrable. These results were obtained whether the water was preserved at summer or winter temperature; but there was some evidence that on the last day of their detection the bacilli were present, either in larger numbers or in a more active state in the water maintained at the winter than in that at the summer temperature. The B. coli communis persisted for forty days, and probably for a much longer period as no later examination was made, and on the occasion of their last detection they did not appear to have lost any of their original vitality. The typhoid bacillus persisted longer in deep well water than in that of the Thames or Loch Katrine. The addition of salt to the water increased the multiplication of the water bacteria enormously and diminished the duration of life of the typhoid bacillus. When water sterilized by steam was infected with typhoid no multiplication of the bacilli took place. This result was obtained irrespective of the amount of organic matter naturally present in the water used for the experiment. In steam sterilized water, however, the bacilli persisted for a longer time than when the ordinary water bacteria were present; but the greater bactericidal power of unsterilized water was found from some experiments to be not apparently due to the multiplication of the water bacteria and a struggle for existence between them and the typhoid bacilli, but rather to the elaboration of products by these aquatic bacteria, and possibly also by other vegetable life present in surface waters which are inimical and prejudicial to the welfare of the typhoid bacillus. We commend this report to the Water Committee of the American Public Health Association, since the Fifty-third Congress failed to take final action on the bill to appoint a commission to investigate the subject of the pollution of rivers and other natural sources of water supply.

We want a Department of Health to attend to the prosecution of such investigations.

HYPNOTISM AND MARRIAGE.

The forensic relations of hypnotism are coming to the front very rapidly. Within a few days, word has come from a small town near Grand Rapids, Mich., that one PETER BLANKSMA was arrested for non-support of his wife, whom he had married two months before, and two days later had left her. He admitted the desertion and said "he would have left her sooner had he known that he had married her." He further averred that he had never spoken of

matrimony to the woman, had no thought of getting married and that he could not remember anything of the matter. He alleges that she always exercised great control over his mind and that he was hypnotized and made to marry.

We fear that this subject of hypnotic influence must have other important defects than simple "tone deafness" which was so characteristic of the late TRILBY O'FARRELL. He naïvely remarks that he would not have remained with this woman two days if he had known that they were married. His mind being a blank on this important subject, he was left to act as a free moral (sic) agent. But was this actually the case? Was he not actually forced to stay there against his will by the power of hypnotic suggestion? This latter hypothesis is not tenable, because he pleads total amnesia regarding the marriage, while the fact that he lived two days with the woman is quite vivid in his recollection. If one circumstance of a given abnormal psychologic state is remembered the others must be. We would rather refer this episode to the domain of "auto-suggestion." We will not, however, speculate as to their character, merely premising that they must be within the experience and the education of the individual.

In the name of all that is good, why did this woman ever allow her husband to come to a knowledge of his miserable matrimonial estate? Why did she not forever keep from him the fact that he was a benedict? For two days she kept him in profound ignorance of his unfortunate position. Surely, with her commanding powers, and the intimacy of married life she could have prolonged the suggestion that he was a single man indefinitely and then they might have lived happily ever afterward. He, in the happy thought that he was living with a woman not his wife. She, with a husband so kind and obedient that not only was her every word a law, but also a suggestion.

THE JOURNAL TRAIN.

The JOURNAL train will leave Chicago this year *via* the Pennsylvania route. A vestibuled train with all the modern improvements. Due notice will be given.

CORRESPONDENCE.

A Letter to an Aspiring "Abdominal" Surgeon.

Dear Doctor:—After you left, in thinking over the case, I questioned myself if I did right in encouraging you to operate, for although such cases are sometimes easy, as a rule they are complicated and difficult, and for any one to attempt such an operation who has never seen or assisted at any, is a very serious matter. To do abdominal surgery, you must prepare yourself, you must have assisted at a great many operations, to see the difficulties you will encounter and find out how to meet them. To operate on a case is a very serious matter if you are not prepared and have not the facilities to meet emergencies. The great abdominal surgeons in this country—those who have done hundreds of cases, still go around from one city to the other to see other operators and get pointers from them. They are never satisfied with their ability; they are always on the lookout to pick up new points in the technique.

Abdominal surgeons are products of evolution; they have all been general practitioners for many years; they have especially paid attention to diagnosis. Some of them, as the result of environments, became expert obstetricians and consequently also gynecologists. Their general practice they gradually gave up; and as gynecology grew, they had finally also to give up the practice of obstetrics, and so became exclusively, gynecologists.

The gynecology of the past consisted in smearing a little iodin on the cervix and inserting a pessary for retroversion; with an occasional operation for vesico-vaginal fistula or lacerated perineum. But gynecology grew, and it was found that the tubes or ovaries were the cause of the trouble in many cases. They were removed, and the gynecologist became a pelvic surgeon.

Pelvic surgery frequently requires the repair of injured intestines and of the bladder; sometimes a mistake was made in the diagnosis and what was supposed to be a pus tube, was found to be a diseased appendix, or the enlarged spleen was mistaken for a fibroid tumor, and the pelvic surgeons found themselves obliged to operate on all the abdominal organs and thus they became abdominal surgeons.

Another class of general physicians seem to have a peculiar gift in treating fractures and dislocations, and in operating, and thus became general surgeons; as general surgeons they also had to remove tumors of various kinds; they had to open the abdominal cavity, treat diseases of the liver and kidney, and operate for hernia and so became familiar with abdominal surgery. They gradually gave up general practice, some of them even gave up general surgery and became abdominal surgeons, pure and simple. Thus, my dear doctor, you see that the so-called abdominal surgeons have gradually been evolved from the general practitioner. They have tried to master all the branches of medical science; they have developed medical skill in every direction; they have studied pathology and etiology; they have kept abreast with the wonderful progress made in bacteriology, and with our improved knowledge of the diseases of the nervous system and of reflex neurosis.

In short, they have tried to master a fair knowledge of the general practice of medicine and they tried to become expect in the technique of operations, so that they could diagnose a case which required operation promptly, and make few mistakes, and if the patient required an operation they could perform it quickly and safely.

Then for you to attempt such an operation without any training whatever, and without even knowing what the trouble really is, I would consider reckless; in fact, it would be unjust to the patient. You have no right to trifle with human life in that manner, no matter if the patient trusts you and the family will not blame you if she dies. The question before you is, Are you doing the *highest ultimate good to the patient as you have sworn to do* by the Hippocratic oath? Do you think that you can operate as well as some other persons who have had more experience? I think you would not say, yes. You must admit that such a patient has 500 per cent. more chance to live if she goes to a hospital and is operated on by an experienced man, than if you operate on her without the facilities that a hospital offers. This is simply the moral aspect of the case. When it comes to the low, common, commercial view, it is a very poor investment on your side. In your letter, which I have just received, you say that your future success depends upon the result of this

operation. You certainly risk a great deal on the cast of the die. You know that this case may do you a great deal of harm; your competitors will call you reckless, for there are always plenty around who will do backbiting as you well know, so that you run a very great risk, as you say, of injuring your reputation. Now what do you gain? Why, absolutely nothing. The patient probably can not pay a cent, and if you should be successful and the patient lives, who will know anything about it? Who will ever hear about it? The few people with whom the woman is acquainted do not amount to anything. Your competitors will belittle the operation if she gets well, and say it did not amount to much. You will neither pick up any new business nor get any new cases, because they are few and far between. If the woman gets well, few will know about it; if she dies, everybody will hear of her death; they will inquire about the cause and find out all about it, and that certainly will not help your reputation; really the game is not worth the powder. Such isolated cases as a general practitioner gets of this kind do him absolutely no good. They waste more money in buying instruments than they get for the case.

If you want to become an abdominal surgeon, come down for a couple of weeks and I will show you all the cases I can. Go to Philadelphia and New York and see the great operators and assist them. I will be glad to help you and give you letters to these men. Then after having prepared yourself for three or four months, by seeing many cases and assisting at them, you can tackle them yourself and may become as expert as any one, but now, without preliminary training, I would advise you to keep your hands off, for you will do yourself no good and only injure your reputation, and you trifle with human life.

How much better it is to establish a reputation of being careful and conscientious. How much better you stand in a community when you admit that you do not know everything, but that there are special, rare and complicated cases which can only be handled properly by those who devote themselves exclusively to these kind of cases. Such honest statements never hurt one in a community; they rather raise you in the estimation of people. You establish a reputation for honesty and carefulness, which is so desirable. As I have plenty of cases and do not want your case, I thought that it would come in good grace from me to give you this lecture, especially as I would like to see you get along and would not like to see you do things which will hinder your further progress.

Hoping that this will be received in the same kind spirit with which it is offered, and to hear from you again, I remain, Yours truly, J. H. CARSTENS, M.D.

Retinal Images in Oblique Astigmatism.

NASHVILLE, TENN., March, 1895.

To the Editor:—In your issue of February 23, on page 280, I found the following report of some remarks made in the Chicago Ophthalmological Society, by Dr. F. C. Hotz: "Dr. Hotz then spoke about the theory of the symmetric action of the oblique muscles in oblique astigmatism, so persistently advocated by Dr. Savage. He showed that Dr. Savage has given no proof of the existence of such action of the muscles. Dr. Hotz has never been able to find such action in any case of oblique astigmatism and denied that the supposed action would benefit binocular vision. He further *proved by demonstrations that oblique astigmatism does not cause obliquity of the retinal images and showed that the laws of physiologic optics do not sustain such doctrine.* [Italics mine.] The theory is based on false premises and wholly untenable."

In commenting on the above, allow me to say, first, that I was unwilling to do Dr. Hotz an injustice, and therefore wrote him asking if he had been correctly quoted, calling his attention specially to that part of the report which I have italicized. By return mail I received this reply: "The report you referred to in your letter of the 25th is as correct as a brief synopsis of a paper can be." I expected him to confess that he did not believe in my theory of symmetric action of the oblique muscles, but I was greatly astonished that he should say that he was correctly reported as to the non-obliquity of retinal images in oblique astigmatism. This obliquity of retinal images was demonstrated as long ago as 1889 by Dr. J. A. Lippincott, who published the results of his studies in the March, 1889, issue of the *Archives of Ophthalmology*, in which he had cuts, demonstrating his views.

Let Dr. Hotz take any case of astigmatism of more than 3 D., with the meridian of greatest curvature either vertical, horizontal or oblique, and if the patient has ordinary intelligence he can soon satisfy himself that astigmatism is not only capable of blurring, but also of distorting, an object. One eye should be excluded while the patient is asked to look at a rectangular card, two by four inches, held vertically immediately in front of the patient, at the reading distance. As the card is revolved on a pin piercing its center, the patient should be asked its shape when at three different points. When the long sides of the card are parallel with the meridian of greatest curvature, the patient will say it is a rectangle; when these sides form an angle of 45° with the meridian of greatest curvature, the answer will come quickly that it is a parallelogram; again when these sides are brought to right angles with the meridian of greatest curvature, the card again is seen as a rectangle. But, possibly, Dr. Hotz is ready to say that these statements as to the distortion of the object prove nothing as to the distortion of the retinal image. Let us see: The law of projection (direction) is supreme in monocular vision, therefore the lower border of the retinal image must be in the same plane with the upper border of card, and so on for all the borders of card and image, and these planes must all cut the nodal point. Then in obedience to this law the image must be oblique when the object appears to be thus distorted.

Only one other argument as to the distortion of the retinal image in an astigmatic eye when the object is held so that its outlines are oblique to the principal meridians: All will agree that the meridian of least curvature is the line of union of the bases of the prismatic arrangement of the astigmatic cornea, and that all prisms refract light towards the base. Let us then take the right eye of a case of astigmatism, with the meridian of least curvature at 135°. A horizontal line held before this eye will send rays of light from its entire length into the eye, but for convenience of study we will consider only the axial rays coming from the two extremities. This ray from the left end of the line strikes above the meridian of least curvature and must be bent towards it, its subsequent course in the eye necessarily being down and out; the axial ray from the right end of the line strikes below the meridian of least curvature and must be bent towards it, the course of this ray, after refraction, being up and in. Thus it is easily shown that the image of this horizontal line must be inclined down and to the right. Because of this declination of the image, the line itself seems inclined to the same extent and in the same direction. This is one law of physiologic optics. My premises not being false, my theory may be true. My theory is not only true, but I have been able to show that it has a highly practical side. This is set forth in my paper presented at the Eighth International Congress of Ophthalmology.

The distortion in oblique astigmatism of the retinal image,

in monocular vision, is settled by the law of direction; the rotation of the eyes by the oblique muscles, in oblique astigmatism, is compelled by the more powerful law of corresponding retinal points.

In closing, allow me to make the following quotation from Dr. Maddox, of Edinburgh: "Dr. Savage has shown that a certain amount of corrective torsion, or, to substitute his own words, 'of harmonious symmetric action of the obliques, is necessary when oblique astigmatism exists in both eyes, since the retinal images of vertical objects are not themselves vertical, and that correcting cylinders which make these images vertical alter the torsional requirements. These facts may well have the practical bearing he claims for them.'"

Very truly,

G. C. SAVAGE, M.D.

Malaria a Waterborne Disease—An Old Idea.

TECUMSEH, MICH., Feb. 9, 1895.

To the Editor:—Some discussion has lately taken place in the JOURNAL and the *Medical Record* in reference to malaria being a waterborne disease. That malarial poison is disseminated through the medium of water as well as through the atmosphere is generally mentioned by almost every writer who has given the subject attention.

Permit me to quote from a few modern authors: In Reynold's "System of Medicine," Dr. W. C. Maclean states: "That it is a common belief in India that water is capable of absorbing malaria, and that periodic fevers, dysentery, and even cholera are produced by drinking water so charged." Dr. Bristowe states in his work on "Theory and Practice of Medicine:" "That it is dangerous (according to some) to drink the water, however pure it may seem to be, which is furnished by the soil of such localities." Referring to malarious localities, Dr. Loomis, in his excellent work on "Practical Medicine" says: "The question arises, How does malarial poison gain entrance into the human body? The most reasonable view is that this is effected through the respired air. Certain facts seem to show that it may be introduced through the intestinal tract with the food and water. There seems to be scarcely a doubt but that it may be taken into the stomach with foul drinking water." In Pepper's "System of Medicine" edition 1884, Dr. Samuel M. Bemiss states in his article on malarial fevers: "That malaria is miscible with water. It is capable of being carried by currents of water through distances and periods of time altogether undetermined without losing its toxic effect or, perhaps, the faculty of reproduction. It is more than likely that this means of conveyance has effected its distribution to continents and islands too widely separated to justify a belief that it was wind-wafted. No observation need be adduced to establish the waterborne habit of the malarial poison, or the positive liability to its toxic effects when received into the stomach through this medium. These facts have been well understood from the time of Hippocrates."

Dr. W. Gilman Thompson, in the "American Text-book on the Theory and Practice of Medicine" states: "The mode of malarial infection is not definitely understood. The miasm seems to enter the system through the medium of inhalation, while at other times it apparently enters through the alimentary canal by means of contaminated drinking water, or other fluids exposed to a malarial atmosphere."

Quotations might be made from various other writers on this subject, in order to illustrate the fact which has long been known to the medical profession, that malaria is a waterborne as well as an airborne disease.

Very respectfully yours,

J. F. JENKINS, M.D.

Injections in Hernia.

BREWTON, ALA., March 6, 1895.

To the Editor:—Will you kindly give me the formula used for the radical cure of hernia by the injection method? Also please state whether or not you consider such injections safe, and if not, what is the special danger?

By so doing you will confer an appreciated favor. Also please refer me to any literature on the subject of which you may know. Respectfully,

L. M. MCLENDON, M.D.

ANSWER:

Fl. Ext. Querci Albæ (reduced by distillation one-half)	64
Alcohol, 90 per cent	16
Ether Sulph	8
Morphiæ Sulphatis	24
Tr. Veratri Viridis	8

M.

Inject from 5 to 20 drops in small and recent herniæ, but 25 to 50 drops in old and larger herniæ. Heaton. See also Heaton on Cure of Rupture, Boston, 1877.

Tetanus Toxin.

COLORADO, TEX., Feb. 8, 1895.

To the Editor:—I am preparing an article on "Tetanus" to be read at the meeting of the State Association in April. Will you do me the kindness to give me the result of treatment so far as you can, with inoculations of tetanus toxin in your city? Very truly yours,

P. C. COLEMAN, M.D.

Chromicizing Catgut.

MILWAUKEE, WIS., March 6, 1895.

To the Editor:—The formula for chromicizing catgut according to Lister, as quoted by you from Lucas-Championnierre, contains no chromic acid.

Yours truly,

FREDERICK SHIMONEK.

ANSWER:—We gave the original formula for carbolized gut, but Professor Lister (*Trans. Int. Med. Cong.*, Philadelphia, 1877, p. 538) said: "I have at last made a mixture of carbolic acid, glycerin, chromic acid, spirit of wine and water, which I think will prove the very thing required;" but he did not give the exact formula. The following from Wharton will be found useful: "Soak the catgut in alcohol a short time, then place it in the following solution for forty-eight hours:

"Chromic acid	06
Carbolic acid	12
Alcohol	8
Water	80

M.

"It is then removed and placed in glass jars for use. Before using soak for thirty minutes in a 5 per cent. solution of carbolic acid."

ASSOCIATION NEWS.

The Baltimore Meeting—Hotel Accommodation and Rates.

The hotels named below have agreed to accept a reduction from their regular rates for accommodating the members and delegates attending the meeting of AMERICAN MEDICAL ASSOCIATION in May next. All of these houses are first class and will give satisfactory service. The capacity of each house mentioned shows the number of rooms available at the time of meeting, as estimated by the proprietor.

European Plan:—Hotel Stafford (headquarters), Washington Place, capacity 150, rooms $1.50 to $5 per day; Hotel Rennert, Saratoga and Liberty Streets, capacity 250, rooms $1.50 and upward per day; Mt. Vernon Hotel, Mt

Vernon Place west, capacity 40, rooms $1.50 per day, two persons in room $2.50 per day; Hotel Imperial, Monument Square, capacity 100, rooms $1 to $1.50 per day; Hotel Studio, Charles Street and Mt. Royal Avenue, capacity 10 to 15, rooms $1.50 per day.

American Plan:—Carrollton Hotel, Baltimore and Light Streets, capacity 250, $3 to $4 per day; Hotel Altamont Eutaw Place and Lauvale Street, capacity 50 to 100, $2.50 per day; Hotel Albion, Cathedral and Richmond Street, capacity 40 to 60, $2.50 to $4 per day; Eutaw House, Baltimore and Eutaw Streets, capacity 60 to 100, $2.50 to $3 per day.

In addition there are a number of smaller hotels and many excellent boarding houses where accommodations can be had for from $1 to $2 per day. A list of these will be kept at the registration desk during the meeting.

Any one preferring the quiet, comfort and economy of a family hotel or boarding house can have the necessary accommodations reserved by making early application to the Secretary of the Committee.

GEORGE H. ROHÉ,
Secretary Committee of Arrangements.

Section on Ophthalmology. — Preliminary program of the Section on Ophthalmology of the AMERICAN MEDICAL ASSOCIATION for the Baltimore meeting:

1. Address of the Chairman, Edward Jackson, Denver, Colo.
2. Incipient Cataract, by A. R. Baker, Cleveland, Ohio. Discussion opened by Boerne Bettman, Chicago, Ill.
3. The Operation for Secondary Cataract, by J. W. Thompson, Kansas City, Mo.
4. The Operative Treatment of Immature and Some Forms of Zonular Cataract, by J. E. Weeks, New York, N. Y. Discussion on Cataract opened by Boerne Bettman, Chicago, Ill.
5. Case of Congenital Ectopia Lentis with Diplopia, by F. C. Hotz, Chicago, Ill.
6. Ectopia Lentis, by F. B. Tiffany, Kansas City, Mo. Discussion on Ectopia Lentis opened by Harold Gifford, Omaha, Neb.
7. Symposium on Plastic Operations about the Eye, (a series of five minute papers): Skin Grafting on the Eyelids, by F. C. Hotz, Chicago, Ill.; The Restoration of the Eyelids with Sliding Flaps, by W. C. Tyree, Kansas City, Mo.; Practical Points in Anesthesia for Plastic Operations about the Eye, by M. W. Zimmerman, Philadelphia, Pa. Papers by Eugene Smith, Detroit, Mich., and Herbert Harlan, Baltimore, Md. Discussion opened by R. A. Reeves, Toronto, and G. C. Harlan, Philadelphia, Pa.
8. Symposium on Operations on the Ocular Muscles, (a series of five minute papers): The Indications for and the Advantages and Technique of Muscle Shortening, by G. C. Savage, Nashville, Tenn.; The Slight Effects sometimes Produced as the Results of Free Tenotomies of the Ocular Muscles for Heterophoria, by S. Theobald, Baltimore, Md.; The Technique of Tenotomy of the Ocular Muscles, by L. Connor, Detroit, Mich.; The Limitations of Tenotomy of the Ocular Muscles, by H. F. Hansell, Philadelphia, Pa. Papers will be read by Hiram Wood, Baltimore, Md., and C. H. Thomas, Philadelphia, Pa. Discussion opened by G. T. Stevens, New York, and S. D. Risley, Philadelphia.
9. Hysterical Affections of the Eye Muscles, by H. Gradle, Chicago, Ill.
10. Strabismus, by C. M. Hobby, Iowa City, Iowa.
11. Practical Points Gained in the Treatment of One Thousand Cases of Insufficiency of the Ocular Muscles, by J. W. Park, Harrisburg, Pa. Discussion opened by S. Theobald, Philadelphia, Pa.
12. A New and Almost Bloodless Enucleation Operation, by Boerne Bettman, Chicago, Ill.
13. Evisceration of the Eyeball, by L. Webster Fox, Philadelphia, Pa. Discussion opened by S. D. Risley and G. O. King, Philadelphia, Pa.
14. Histologic and Bacteriologic Notes on Some Cases of Penetrating Wounds of the Eyeball, together with Experimental Observations on certain Bacilli found in a Case of Post-operative Panophthalmitis, by G. E. de Schweinitz, Philadelpha, Pa. Discussion opened by R. E. Randolph, Baltimore, Md.
15. A Clinical Study of the Ulcerative Diseases of the Cornea, by S. D. Risley, Philadelphia, Pa. Discussion opened by C. J. Kipp, Newark, N. J.
16. The Infiltration Method of Anesthesia in Ophthalmic Practice, with Demonstration, by Harry V. Wurdemann, Milwaukee, Wis. Discussion opened by Harry Freidenwald Baltimore, Md.
17. Report of Committee on the Scientific and Hygienic Value of Examining the Eyes in the Schools, by B. Alex. Randall, Philadelphia, Chairman, W. F. Southard, San Francisco, and others.
18. The Use of Prisms to Increase Vision in the Formation of New Maculæ in Conical and Leucomatous Cornæ, etc., by G. M. Gould, Philadelphia, Pa. Discussion opened by T. H. Fenton, Philadelphia, Pa.
19. The Percentage of Symmetrical and Asymmetrical Merediæ of the Cornea in Astigmatic Eyes, by S. D. Risley, and J. L. Thorington, Philadelphia, Pa.
20. Two Thousand Five Hundred Cases of Ocular Headaches and the Different States of Refraction connected therewith, by W. F. Mittendorf, New York.
21. A Study of the Refraction of One Thousand Five Hundred Eyes, by H. Bert Ellis, Los Angeles, Cal.
22. Latent Astigmatism, by W. H. Starkey, Chicago. Discussion opened by W. H. Wilder, Chicago, Ill.
23. Anisometropia, by W. F. Southard, San Francisco. Discussion opened by S. D. Risley, Philadelphia, Pa.
24. Some Rare Complications of Infantile Purulent Conjunctivitis, by A. A. Hubbell, Buffalo, N. Y. Discussion opened by B. Alex. Randall, Philadelphia, Pa.
25. Retrobulbar Tumor, by S. C. Ayres, Cincinnati, Ohio. Discussion opened by J. A. White, Richmond, Va.
26. A Case of Enchondroma of the Cartilage of the Upper Lid, by P. D. Keyser, Philadelphia, Pa.
27. Extensive Changes in the Choroid with report of Cases, by J. T. Carpenter, Jr., Philadelphia, Pa.
28. Anomalies in Ophthalmic Practice, by A. C. Corr, Carlinsville, Ind.
29. The Relationship Between Eye and Brain, by J. A. Lydston, Chicago, Ill.
30. Eight Years' Experience with the Surgical Treatment of Trachoma, by H. Gifford, Omaha, Neb.
31. Hemorrhages into the Retina and Vitreous in Young Persons Associated with evident Disease of the Retinal Blood Vessels; Remarks on the formation of Vessels into the Vitreous and in a Case of Emigrating Subhyaloid Hemorrhage, by Harry Friedenwald, Baltimore, Md.
32. Formalin as a Preservative Agent of Eye Specimens, by W. H. Wilder, Chicago, Ill. Discussion opened by F. C. Hotz, Chicago, Ill.

Papers will be read by C. T. Kollock, Charleston, N. C.; D. S. Reynolds, Louisville, Ky.; L. J. Lautenbach, Philadelphia, Pa.; C. A. Oliver, Philadelphia, Pa.

H. V. WURDEMANN, Secretary.

Section on Dental and Oral Surgery.—Dr. M. E. Fletcher Chairman; Dr. Eugene Talbot, Secretary.

Chairman's Address; Bacteriology, by S. A. Hopkins, Boston.

Adenoids, by Geo. F. Eames, Boston.

The Effect of Sterilizing Processes upon Steel Instruments, by Wm. H. Potter, Boston.

Common Ground of Medicine and Dentistry, Joseph Roach, Baltimore.

Destruction of Children's Teeth, Cause and Remedy, by J. G. Humsler, Baltimore.

The Progress of Modern Dental Practice, by A. H. Thompson, Topeka, Kan.

Suppuration of the Intermaxillary Bones with Fistulous Opening into the Nasal Cavity, Two Cases, by W. Xavier Sudduth, Minnesota. Ulceration of the Oral Cavity and its Treatment, by Dr. Genese, Baltimore.

Specific Treatment of Necrosis of the Alveoli and Maxillæ with Sulphuric Acid, by W. A. Mills, Baltimore.

Diseases of the Soft Parts of the Mouth and Ill Developed Jaws, by W. S. Twilley, Baltimore.

A Presentation of Inflammation and Tumorous Growths caused by wearing Rubber Denture, by Bernhard Myer, Baltimore.

Calcification of the Teeth, by R. R. Andrews, Cambridge.

The Value of Differential Diagnosis in Dentistry, by Vida A. Latham, Chicago.

The Discovery of Anesthesia and its Outgrowth, Rapid Breathing as a Pain Obtruder in Minor Surgery and Medicine with its History and Application for Twenty Years, by W. Bonwill, Philadelphia.

The Forty-sixth Annual Session of the AMERICAN MEDICAL ASSOCIATION will be held in Baltimore, Md., on Tuesday, Wednesday, Thursday and Friday, May 7, 8, 9 and 10, commencing on Tuesday, at 10 A.M.

PUBLIC HEALTH.

Progress of Cremation.—In the annual report of the Cremation Society of England, it is asserted that the sentiment of the public against cremation is declining, and the success of the crematorium at Woking has been so satisfactory as to warrant the consideration of a proposal to build one near London.

Sewerage of Constantinople.—The Commission on the sanitation of Constantinople, appointed by the Sultan, recently held its first session, at which it was decided to construct main sewers in those parts of the city where none exist and to repair the existing sewers which, in their present condition are not only useless but a constant menace to the public health. It was also decided to take measures for the paving and repairing of the streets wherever necessary.

The Healthiest Year.—The remarkable healthfulness of 1894 is again shown in the registration returns for England and Wales. The death rate for these countries—16.6 in 1000—is the lowest ever recorded, being 1.5 per 1000 below the lowest previous rate, that of 1888 which was 18.1. It was also 2.6 per 1000 below the mean annual rate of the preceding ten years. On the other hand, the birth rate is also the lowest ever recorded—29.6 per 1000 of population, which is 2.0 per 1000 below the mean rate of the previous ten years. The birth rate in these countries shows an almost continuous decline for the decade—from 33.6 in 1884 to 29.6 last year.

"Freshened" Beans.—The Hygienic Council of Paris, having been consulted as to whether beans soaked in water to freshen them and give them the appearance of green beans were injurious to health, has reported (*Le Progres Medical*) that the radicles begin to develop by reason of this soaking and that this gives rise to different chemic substances, none of which, however, can be considered dangerous. On the other hand, a great many of these soaked beans present traces of moldiness between the cotyledons and a deep green coloration in the cotyledons themselves. Microscopic examination shows the presence on the surface of the well-known fungus *Penicillium glaucum* and of myriads of its spores in the colored spots of the cotyledons. Without pronouncing on the character of the fungus, the Council calls attention to the fact, now apparently well established, that the spores of this fungus introduced into the blood are capable of producing a skin disease. They conclude that "soaking beans produces enough alteration in their tissues to justify a prohibition of their sale."

The "Influenza" Fad.—Speaking of the so-called influenza epidemic in Great Britain, of which the JOURNAL has made note from time to time, a recent number of the London *Lancet* gives voice to a doubt which must have occurred very generally to the professional mind in this country. Is influenza really so prevalent as current gossip represents it to be? If by "influenza" is meant an acute febrile attack of short incubation, the onset characterized by severe muscular aching, rigor, high temperature and intense headache, with sometimes vomiting and diarrhea, these symptoms passing off in from twenty-four to thirty-six hours, leaving the patient greatly prostrated and with a troublesome cough and some bronchial catarrh—how many such cases are actually met with this season? While admitting that some sporadic cases of influenza are to be found, our cotemporary warns against the growing habit of calling every indefinite feverish attack by this name. "That it is a temptation no one will deny, especially when we consider how anxious patients are that their disease should be named and how the practitioner is apt to be looked down upon if he says he can not do so. But it must also be remembered that influenza is a serious disease, and it is therefore unwise to call every febrile catarrhal affection by this name; for these latter, when properly treated, never leave any serious sequelæ, whereas the former complaint, even though treated with every care, may, and often does, leave a large legacy of grave evils behind it."

Height of Buildings.—The London Building Act which went into effect Jan. 1, 1895, fixes 24 meters as the maximum total height for dwelling houses. Dwellings in streets less than 15 meters in width can not exceed this height. The height of houses in France has been regulated by law for over a century. The ordinance of April 10, 1783, confirmed by that of 1792, fixed this at 54 feet (this, prior to the vogue of the metric system) in streets 30 feet wide, and 45 feet in those of less width. Legal restrictions have since been adopted in the principal French cities. In Paris the ordinance of July 23, 1874, fixed the maximum height of buildings at 12 meters in streets less than 7.80 meters in width. They may be 15 meters in streets 7.80 meters to 9.75 meters; 18 meters in those from 9.75 meters to 20 meters; any streets wider than this may have the buildings 20 meters high. In Lyons the highway ordinance of 1874 allows buildings to be 22 meters in height on quays and places of 50 meters in width; 20.50 meters in streets over 10 meters; 19 meters in streets over 8 meters and 18 meters in narrow streets. These measures are considered insufficient by hygienists of all countries. According to German authorities the two dimensions should be equal. This was also the rule established at the Buda-Pesth Congress, on motion of Corfield, of London. Trelat goes still further; he recommends that the width of the street be one and one-half times the height of the house. This goes too far, according to *L'Union Medicale*, as in the older cities we must be content with less spacious streets when new building lines are established on the older streets.

Prevailing Morbidity.—During the first part of March there is reported a decided increase of the acute lung diseases, the diarrheal diseases and—except diphtheria—of the acute infectious diseases throughout the country. There has been a recrudescence of smallpox in localities where it was sensibly diminishing during January and February; and, in the lower Mississippi valley—from St. Louis south—the disease is very generally prevalent and increasing. In the extreme south—Texas, for example—it is asserted that "the region is full of smallpox germs imported by Mexicans who were brought in to gather last year's cotton crop;" in some northern localities—Chicago, for instance—the increase is attributed to refugees fleeing from smallpox in the South, and outbreaks are traced to Hot Springs sojourners and to negro colonists from Tennessee. These pleas in extenuation and defense have little weight with the sanitarian, who points out that any well-vaccinated community may safely invite immigration from the Gaboon country itself, where smallpox is endemic and perennial.

Although influenza is increasing in frequency and fatality—as judged by the mortality returns of the large cities—it is still an insignificant factor of the prevailing morbidity in this country when compared with its newspaper ravages in the Old World. A late cable dispatch says that while London is indulging the hope that the crisis of the combined affliction imposed by influenza and inclement weather is passed, Paris, Vienna and St. Petersburg "still cry out in bitterness of spirit almost equal to the plague-stricken Egyptians." It is admitted, however, that the disease is declining, but they manage to get a grewsome satisfaction out of an apprehended outbreak of typhoid and diphtheria "owing to the long disuse of thousands of drains [sewers]" frozen up and unflushed for a month or more. The dispatch cited says that "the sanitary condition of London, which is usually the best of any great city in the world, is now extremely unsatisfactory," owing to the causes just mentioned.

Health Reports.—The Supervising Surgeon-General of the Marine-Hospital Service has received the following health reports:

SMALLPOX IN THE UNITED STATES.

Texas: In compliance with your request under date of March 2, which I have the honor to acknowledge, I herewith report the presence and present status of smallpox in Texas. The disease originated at Taylor, Williamson County, the first case making its appearance in a boy—the child of a restaurant keeper, about February 15. The infection was introduced by Mexican laborers, brought here for farm hands. The presence of this case was concealed from the authorities until in the pustular stage; meantime many persons had been exposed and gone on their way; hence the dissemination of the infection. It was next reported at Wortham, in Freestone County, near the line of Navarro County; and a few scattering cases at other points in the latter county. A case was also reported near Hutto, on the M., K. & T. Railway. I visited each of the infected localities upon the request of local authorities, and personally saw that all necessary steps were at once taken to prevent the spread of the disease. Three cases were reported to this office as having appeared at Fort Worth. Dr. Cunningham, the city physician, reported that he did not know the source of the infection, and that a number of transient persons had been exposed before the disease was diagnosed, and escaped the health authorities. It is unnecessary to say that each case, as developed, is promptly isolated and strictly guarded; that all persons known to have been exposed are separated and kept under observation during the period of incubation, and that disinfection and very general vaccination are practiced. I inclose a copy of a circular letter of instructions issued to local health officers, which instructions are being everywhere enforced where the disease appears. Only a few cases—two, three or four—have occurred at any one point, and they have been in the persons of those primarily exposed; *i. e.*, exposed to the first case developed from the imported infection. This constitutes the 'second crop,' and as the exposure has taken place generally, before the presence of the disease was known, as in the first case at Taylor, or before a diagnosis had been made, it is impossible to forestall its development. Later, it is within the scope and power of sanitation to arrest further propagation. I have no fear whatever of the disease assuming anywhere the proportions of an epidemic.

(Signed) R. M. Swearingen, M.D.

March 5, 1895.

Louisiana: New Orleans, February 24 to March 2, 1 case.

New York: Brooklyn, March 2 to 9, 1 case.

Michigan: Three Rivers, March 1 to 7, 1 case.

Missouri: St. Louis, March 2 to 9, 33 cases, 6 deaths.

Pennsylvania: Philadelphia, February 24 to March 2, 19 cases.

Wisconsin: Milwaukee, February 24 to March 2, 7 cases, 2 deaths.

Texas: Taylor, February 15 to March 2, 1 case; Wortham, February 15 to March 2, a few cases; Fort Worth, February 15 to March 2, 3 cases.

FOREIGN.

Reports of smallpox received by the Supervising Surgeon-General Marine-Hospital Service:

Austria: Buda-Pesth, February 11 to 18, 1 case, 1 death.

Belgium: Antwerp, February 9 to 16, 3 cases, 2 deaths.

Bohemia: Prague, February 2 to 9, 11 cases.

Great Britain: London, February 9 to 16, 3 cases; February 16 to 23, 1 death.

Gibraltar, February 10 to 17, 3 cases.

India: Calcutta, January 19 to 26, 36 deaths.

Holland: Rotterdam, January 16 to 23, 5 cases, 1 death.

Russia: St. Petersburg, February 2 to 26, 13 cases, 9 deaths.

Honduras: Tegucigalpa, February 2 to 9, 1 case.

Scotland: Glasgow, February 16 to 23, 2 deaths.

RIO DE JANEIRO.

I have the honor to transmit report for the week ended Feb. 9, 1895. In this week there were 24 deaths from accesso pernicioso, an increase of 4; 14 from yellow fever, an increase of 9; 3 from smallpox, and 2 from enteric fever, the same as in the week before; 1 from beriberi, a decrease of 1; 1 from diphtheria, and none from whooping cough; 4 from cholera, an increase of 3; 7 from diarrhea choleriformis, an increase of 5; and none reported from cholerina against 1 in the previous week. The total from all causes was 299, being 10 more than in the foregoing week.

While there is an increase in the number of deaths from yellow fever, it can not yet be considered epidemic or threatening, as it is almost too late in the season for it to develop to any great extent, yet all due precautions must be observed.

Cholera does not appear to be extending in the originally infected districts, though it has extended all along the Parahyba River to Campos near its mouth, presumably due to the relaxation of sanitary measures by the authorities under pressure of the press. To this same cause may be attributed the appearance of isolated cases in this town. Besides those reported as dead from cholera, twelve suspected cases were removed to the hospital in Jurijuba Bay. I have heard of no cases among the shipping, except one aboard the ship *Gentil*, which left here for Cabo Frio, sixty miles to the eastward, and put back with a case aboard which was removed and all the customary disinfections performed. Telegrams from the Platte River state that the disease is increasing there in several towns, but really no confidence can be placed in such news here.

I visited the Vaccine Institute, which is a municipal institution, and found everything in perfect order and the cleanliness is remarkable; although there are never less than three calves (2 months old) in the stables, not the slightest odor was perceptible; they furnished me with six filled Hubard's tubes, all of which produced the typical vaccine pustules. The establishment is in a newly arranged building and wants nothing; it is creditable to its authorities.

R. Cleary, M.D., Sanitary Inspector, M.-H. S.

Feb. 12, 1895.

CHOLERA.

India: Calcutta, January 19 to 26, 52 deaths; Madras, January 26 to February 1, 11 deaths.

Brazil: Rio de Janeiro, February 2 to 9, 12 suspected cases.

Turkey: Constantinople, January 29 to February 4, 46 cases, 22 deaths.

Austria-Hungary: Galicia, February 4 to 10, 11 cases, 7 deaths.

YELLOW FEVER.

Brazil: Rio de Janeiro, February 2 to 9, 14 deaths.

The clerk of the Bridgetown (Barbadoes) Quarantine Board reports that yellow fever has been reported by arriving vessels at following places: Curacoa, January 1 to 4, 3 cases, 3 deaths; Panama, January 31, sporadic cases.

Under date of February 14, the U. S. Consul at Santos, Brazil, reported that during the week ended February 9, there were twelve cases of yellow fever in that city, and eight deaths from the same disease.

Under date of February 18, the U. S. Consul General at Guayaquil, Ecuador, reports three deaths from yellow fever in that city during the week ended Feb. 14, 1895.

The U. S. Consul at Vera Cruz, Mexico, reports under date of March 1, that there was one death from yellow fever in that city during the week ended Feb. 28, 1895.

NECROLOGY.

Benjamin Burroughs, M.D., of Brooklyn, N.Y., died March 7, at the age of 47 years. He was graduated in medicine at the Long Island College Hospital in 1888 and soon afterward settled in the city named. He was a member of the Kings County Medical Society, and was for a time an employee of the Health Department and in that capacity served with marked credit and efficiency. About a year ago he manifested symptoms of pulmonary tuberculosis, and from that affection died, leaving a large circle of friends to mourn his loss.

Albert C. Hallam, M.D., of Brooklyn, N.Y., died Jan. 9, 1895, in his fiftieth year. He was a native of Watertown, Conn. He obtained his medical education at Yale University, graduating in 1866. He practiced in Brooklyn from the year 1867, and was a member of the local medical society for many years, and in a number of social organizations was recognized as an influential citizen. Dr. Hallam was appointed a member of the Board of Education in 1882, by Mayor Seth Low. He was Vice-President of the Bushwick Savings Bank, and was a director of the Amphion Academy Company. He was a life member of the Amphion Musical Society, and was also one of the founders of the Hanover

Club. He was a member of the Union League and of the Windsor Club. His death occurred from an attack of uremic coma due to chronic renal disease that manifested itself fully two years before. He was twice married. His widow with two daughters survive him.

ROBERT OGDEN DUBOIS, M.D., of New York City, died March 9, in the thirty-sixth year of his age. He was born in that city of old Huguenot stock and of a family branch that has been frequently represented in medicine. He was graduated from Yale Medical Institution in 1886, and was an assistant surgeon to the Eye and Ear Infirmary, as others of his name had been before him.

ARNOLD HALLETT, M.D., formerly of Brooklyn, N.Y., died at Norwalk, Conn., on the 10th inst. He was a native of St. John, N. B., having been born there nearly seventy years ago. He was for many years attached to the surgical staff of the Long Island College Hospital, and an honored member in the local medical societies. He was an alumnus of the College of Physicians and Surgeons. He early acquired a lucrative medical business, and retired several years since from active practice.

S. VOHDEN, M.D., aged 69, Baltimore, Md., March 1.——L. Burden, M.D., Lagrange, Ind., March 3.——F. Harding, M.D. aged 33, Norwalk, Ohio, February 25.——M. S. Butler, M.D., Cherokee, Iowa, March 3.——H. Schneider, M.D., aged 53, Baltimore, Md., February 28.——W. A. Stovering, M.D., Cleveland, Ohio, March 3.——A. Deitrichs, M.D., Denver, Colo., March 8.——A. B. Mason, M.D., aged 51, Wadestown, W.Va., March 4.——B. E. Vaughan, M.D., aged 32, New York, N.Y., February 25.——W. Lemon, M.D., Staples, Minn., March 5.——A. J. Applegate, M.D., Indianola, Iowa, March 2.——S. O. Scudder, M.D., Rome, N.Y., March 2.——D. Towne, M.D., Worcester, Mass., February 25.——F. H. Hoadley, M.D. West Palm Beach, Fla., February 25.——R. R. Taylor, M.D. aged 70, Philadelphia, Pa., February 26.——C. M. Gaylord, M.D., of Mason City, Iowa, March 11.——I. N. Fox, M.D., of Woodstock, N. H., March 6, age 35.——J. M. C. McLaughlin, M.D., of Kansas City, Mo., March 6.

MISCELLANY.

High-Priced Cod-Liver Oil.—Another cod-liver oil famine, similar to that of eight or ten years ago, has caused a considerable raise in price with an intimation of a still further advance. The famine is attributed to the prevailing leanness of the fish during the last year or two. The increase in price already amounts to over 100 per cent. and the effect is seen in the instructions given to hospital staffs to be economical in prescribing the oil.

Generous Donation by a Physician.—The Ohio Wesleyan University has received a gift of $50,000 from Dr. Charles E. Slocum, a reputable physician at Defiance, Ohio, for the purpose of enabling that institution to erect a fireproof library building. Dr. Slocum is an alumnus of the College of Physicians and Surgeons, New York, and Jefferson Medical College, also a member of the AMERICAN MEDICAL ASSOCIATION and several other national scientific bodies.

Wounds of the Eye.—Ottinger has collected (*La Presse Medicale Belge*) the statistics of 1,000 cases of ocular traumatism, 398 of the right and 602 of the left eye. Of these, 715 were operative wounds and 287 accidental. Among the former the right eye was involved in 272 cases and the left in 443; among the latter, the right 128 times and the left 159 times. These figures corroborate those of Cohn, showing that the left eye is more exposed than the right.

Medical Education in New England.—The faculty at Yale University has decided to advance the period of the regular medical course from three up to four years. A committee has been appointed to make the necessary changes and announcements. The faculty at Harvard has voted to authorize certain approved physicians to announce their proposed instructions yearly in the medical department. These extra-mural teachers will receive this privilege upon application to a special committee, of which Dr. E. H. Bradford is chairman.

University of Maryland.—As an addendum to the table of medical colleges and college attendance, republished by request in the JOURNAL of the 9th inst., the University of Maryland, Faculty of Physics—J. E. Michael, A.M., M.D., Dean—reports a total attendance at the current session of 240 students; 104 first-year, 78 second-year and 58 third-year. The figures of the total are the same as for the preceding session, but there is a gain of nearly 20 per cent. in the first-year men as compared with the previous year—the classes of 1893-94 numbering 87 first-year, 83 second-year and 80 third-year students.

Safeguarding Street Car Travel.—The Camden, N. J., Board of Health is pushing the passage of an ordinance to compel all street, trolley and steam cars to be fumigated daily. The Brooklyn, N. Y., Board of Aldermen is considering action looking to the appointment of inspectors for every line of surface cars operated in that city, the inspectors to regulate the speed, passage of street crossings and other measures for the safety of passengers and pedestrians. During the discussion Alderman Clark, the mover of the resolution, asserted that two, three and sometimes four people a day are killed by the surface cars in Brooklyn. This, if true, is worse than the surface crossing slaughter in Chicago.

A Surgeon Slain by a Lion.—Surgeon E. S. McKay, of the British Navy, is reported by the *Illustrated London News* to have been slain by a lion, near Lake Nyassa, Africa. This young man was an athlete and a prize-winner in cycling circles. After taking his medical degree he went out to Africa, for three or more trips, as surgeon to steamers. In 1889 he obtained an appointment as surgeon in the Navy, serving on the SS. *Swallow* and *Herald*. He volunteered for duty in Central Africa and while there had a few days' shooting among the elephants and large game near Lake Nyassa. One day, however, he came unexpectedly on a lion and lioness, the former of which he wounded. In pursuing the animals the surgeon advanced too far. The enraged beast sprang upon him and injured him fatally. He was buried with naval honors on the shore of the lake.

Pay-Hospital for Infectious Diseases.—A wealthy lady residing in New York City has responded to a suggestion that room exists in that city for an institution whereat the well-to-do, so unfortunate as to contract contagious disease may receive suitable treatment, and has started a subscription fund with a check for $25,000. The general plan of operation of the fund will imply, says the *Medical Examiner* for February, "that the hospital shall be a private hospital; that the money shall be used solely for the purpose for which it is given; no part of it to be applied to the improvement of any existing institution, and that the management shall be in the hands of the Board of Health and of a board of trustees appointed by the subscribers to the fund toward the erection of the hospital."

Mixed Infections in Gonorrhea.—Bordoni-Uffreduzzi reports in the *Gazette Medicale de Liege* the case of a young girl ravished by a man suffering from gonorrhea. A few days later, double pleuritis supervened, numerous joints being also involved. Gonococci were found in the pleuritic exudate and cultures by Wertheim's method showed that no other bacteria save these were present. This case adds to the mass of evidence previously accumulated which tends to negative the theory advanced by some authors that all the complications of urethritis are due to secondary infection. Accord-

ing to this theory, the presence of the gonococcus in the organism arouses the action of other noxious bacteria which then cause the symptoms—the gonococcus being unable alone to produce them. This hypothesis is combated by a number of conclusive observations similar to this of Bordoni's.

Treatment of Epistaxis by Digital Compression.—Szcypiorski reports (*Arch. Med. Belges*) a case of epistaxis treated by digital pressure. A robust laborer, 45 years of age, was seized with spontaneous nasal hemorrhage; before the writer arrived, tampons saturated with Monsel's solution had been tried with no avail; blood continued to gush from the left nostril. An injection of hot water was used and the antero-superior part of the nostril was cauterized with nitrate of silver. This arrested the hemorrhage for a time, but a sudden fit of sneezing started it again. The idea then occurred to Szcypiorski to pinch the nose somewhat energetically between the thumb and index finger. The hemorrhage stopped immediately. The compression lasted uninterruptedly for ten minutes and was repeated by the patient at each sneeze. Since this case the author has used the same method in many cases of spontaneous epistaxis and always with the same success.

Statistics of Symphysiotomy.—Pinard has given to the Baudelocque Clinic the results of his symphysiotomies for the year ending Dec. 7, 1894—*Ann. de Gynecologie*. During this time, Pinard and his pupils made 22 symphysiotomies. Full details are given of the last 12 cases. The presentation was vertex in 9, breech 2, face 1. In the 9 vertex presentations the forceps were applied five times. In the four others, the labor proceeded spontaneously after dividing the symphysis. In the 22 cases, 3 mothers and 22 children died. During the operation Pinard had no hemorrhage or laceration of the vagina by the pubis, which he attributes to the preliminary use of Champetier's balloon. The results of the operation were very good. All the cases seen after a greater or less time since their accouchement were able to pursue their usual vocations. Pinard's cases amount to 49 altogether. Of these, 5 of the 49 children and 4 of the 49 mothers died. These figures—8.2 per cent. mortality—are much more satisfactory than those of foreign authors who give 12 per cent. for the mother. According to Neugebauer, Olshausen *et al.*, symphysiotomy is nearly as grave as Cæsarean section, the latter giving 14 to 15 per cent. mortality. The usual and most serious complications are hemorrhage—one case in seven—and laceration of the vagina, which is also frequent. Among Pinard's cases two had been operated on once before. In this connection Gueniot has insisted on the difficulty of dividing the symphysis in cases already operated on, and Budin reports a case in which there was a thick fibrous band behind the articulation, remaining from the first operation.

More Microbial Mischief.—Another microbic terror, familiar heretofore in an inoffensive guise, is exploited by Dr. A. Gilbert of the Paris Faculty of Medicine. Escherich's bacillus—the *B. coli communis*—is, according to Gilbert, the *fons et origo* of a number of diseases whose causation has hitherto been veiled in obscurity. The bacillus coli is prolific in the production of toxins whose action has been tested in rabbits with the production in the first degree, of mydriasis, cutaneous anesthesia, muscular weakness and coma; in the second degree, of convulsions, nystagmus and hyper-excitability of the skin and of the organs of sense; the third degree is signalized by violent tetanic contractions terminating in death. Unlike other species of microbes in the gastro-intestinal tube, which become rarer as they descend so as to be almost completely absent in the large intestine, the bacilli coli are, on the contrary, so abundant in the colon that it has been computed there are from twelve to fifteen thousand millions evacuated with every fecal discharge. Professor Gilbert's chronicler in the *Medical Press* says that these conditions easily explain how the skin and the mucous membrane of the genital organs can be contaminated by this microbe; how they can be met with in milk, or on clothes, on the ground, on plants and in water. It is also easy to understand how the bacillus coli can penetrate into the organism of the new-born infant, its mouth coming in contact sometimes with the fecal matter of the mother; the milk can also be the channel of infection, and it is thus that at the very *début* of its existence the infant lodges in its digestive tract this microbe, which will never quit it. Later on, the bacilli coli enters the system by the water we drink and the vegetables we eat, which have perhaps been watered with fecal matter.

Society Notes.

The Medical Society of the Missouri Valley will meet at Sioux City, Iowa, March 21 ,1895, at 9:30 A.M. An interesting program is promised.——The third regular meeting of the Albany County (N.Y.) Medical Society was held at Albany, February 27.——At the annual meeting of the Anne Arundel, Md., Medical Society the following officers were elected for the ensuing year: President, H. B. Gantt; Vice-President, C. R. Winterson; Recording Secretary, B. R. Davidson; Corresponding Secretary, C. B. Henkel.——A regular meeting of the Cincinnati Academy of Medicine was held March 7. The following officers were elected for the ensuing year: President, S.C. Ayres; First Vice-President, R. B. Hall; Second Vice-President, C. R. Holmes; Corresponding Secretary, J. A. Johnson; Librarian, J. C. Culbertson.——The Belmont County, W.Va., Medical Society held a regular meeting March 2.——The McLean County, Ill., Medical Society held a regular meeting at Bloomington, March 4.——The Falls City Medical Society met in Louisville, Ky., March 7.——The Association of Military Surgeons of Illinois will hold its next annual meeting at Springfield, on March 20, 1895.——The New Haven, Conn., Medical Society held its regular meeting March 6.

Hospital Notes.

The New York Orthopedic Dispensary and Hospital.—This institution is about to receive a donation of $5,000, under the will of the late James T. Leavitt.——According to Pittsburg papers of March 7, the Hospital Staff Association of Western Pennsylvania has decided to admit homeopaths on equal footing with regular practitioners.——The annual meeting of the board of directors of the Bethany Hospital Kansas City, Mo., was held March 1.——The annual report of the Mercy Hospital at Pittsburg, Pa., shows that 2,015 patients were treated during the past year. The capacity of the hospital has been increased by the addition of the new annex, which cost $35,000.——The fourth annual report of the Cincinnati Ophthalmic Hospital shows that 177 patients were treated in that institution during the past year.——The monthly report of the New Orleans Charity Hospital shows that 1,596 patients received treatment during the month of February.——At the annual meeting of the St. Louis Deaconess' Home and Hospital, held March 6, the old board was re-elected. A flat adjoining the hospital has been rented to give accommodation to the friendless women who apply for shelter, until their cases can be investigated.——A meeting of the committee of the Country House of the Montefiore Home in New York, for Incipient Cases of Consumption, was held March 5, and a sub-committee was appointed to confer with the Medical Board of the Montefiore Home concerning the selection of a site for a new building.

Louisville Notes.

The Medico-Chirurgical Society met Friday, March 8, the guest of Dr. C. W. Kelly.

Pure Food Exposition.—This exposition was inaugurated during the past week. The booths occupy the entire second story of Music Hall, and are draped in gay colors. Across the hallway from the booths there are given daily, lectures upon cooking by Mrs. Dearborn, late Principal of the Boston Cooking School.

PHYSICIANS ORGANIZING FOR G. A. R. ENCAMPMENT.—A meeting, by invitation of the chairman Dr. W. P. White, of the physicians of Louisville, was held in the rooms of the Citizens Committee of the G. A. R. on the 8th inst. Dr. Samuel Garvin was elected chairman and Dr. Henry E. Tuley Secretary. Dr. White addressed the meeting and stated that the object of his invitation was organization. He said "the medical department shall be charged with the duty of arranging for the care of all visiting Grand Army veterans who may need medical attention, securing for the purpose the use of established hospitals and, if necessary, other suitable quarters. The medical division shall detail physicians who shall be on duty at these hospitals during certain hours, for the purpose of giving patients such treatment as may be needed, shall provide such ambulance service as may be required, and maintain good sanitary conditions in all barracks and hospitals, that may be in charge of the Citizens Executive Board. It was then decided that the chair appoint a chairman from each of the twelve wards in the city, and that he, in conjunction with the other physicians in his ward, shall constitute the medical department. The Secretary, Dr. Tuley, read a letter from Dr. C. C. Wiley to Dr. White, in which he described his methods of handling the medical department during the twenty-eighth encampment in Pittsburg—and which conveyed many valuable suggestions. It is pleasing to note the willingness of the Medical Department of the local G. A. R. organization to do their duty during the encampment in the city Sept. 11, 1895.

SMALLPOX.—Owing to the impossibility of the Secretary of the State Board of Health receiving satisfactory reports from Lexington in regard to the smallpox epidemic there, he investigated for himself. Dr. F. O. Young, President of the local Board of Health, issued a report that in all there had been thirteen cases in the city. Three recovered before a pest-house was secured, and only ten were sent to the pest-house. It was his belief that the disease was well under control. Dr. McCormack found the above report substantially correct. There were sixteen cases in the pest-house; one new one was sent there during his visit. All were doing well save one which was expected to die. Two cases were quarantined in private houses in the city. None but colored persons have been attacked, and the epidemic is much milder than the reports would lead one to believe.

LOUISVILLE MEDICAL COLLEGE.—The twenty-sixth annual commencement of this institution was held March 8. Estelle Victor Wedding, of Kentucky, delivered the salutatory address. The graduating class numbered thirty-eight and prizes were awarded to the undergraduates.

Washington Notes.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the Medical Society held on the 27th ultimo, Dr. S. O. Richie read a paper entitled: "What is the Significance of Oxalate of Lime in the Urine?" Dr. Harry A. Robbins read a paper on "Cerebral Syphilis," and Dr. W. W. Johnston presented specimens and gave the history of a case of cancer of the descending colon, and tuberculosis of organs from Trudeau's laboratory, Saranac Lake.

At the meeting of the Society held on the 6th inst., Dr. George M. Sternberg, U. S. A., read the essay of the evening, entitled "Explanation of acquired Immunity in Infectious Diseases." The paper was very instructive, and the discussion was opened by Dr. Salmon. Dr. Walter Reed, U. S. A., presented a specimen of subcutaneous myolipo-fibroma kidney, with double ureter, miliary abscess and hypertrophied bladder. Dr. Lamb presented a specimen of tubercular larynx.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The two hundred and twenty-fourth meeting of the Society was held on the 7th inst. Dr. M. F. Cuthbert read the essay of the evening, entitled "Some Unusual Cases of Labor." The reported fifteen cases, one of which was a case of chin presentation with posterior rotation, successfully delivered with forceps. Dr. F. S. Nash read a paper on "Report of a Case of Prolonged Retention of Pessary." The pessary had been worn more or less for twenty years and not removed for eighteen months. It had cut its way through the anterior fornix vagina and was encysted for two and one-half inches, requiring the use of the spoon saw for its removal. The case occurred in the service of Dr. H. L. E. Johnson at the Emergency Hospital. Dr. H. L. E. Johnson presented two cases of retained pessary; one a child's ordinary rubber ball.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—The regular monthly meeting of the attending staff was held on the 2d inst. The report for the month of February read as follows: Number of new patients 836, number of visits 3,032, number of operations 103, number of deaths 5, number of post-mortem examinations 3, number of prescriptions 2,693.

LOCAL BILLS PASSED BY CONGRESS.—The bill with appropriation for erecting a statue of Dr. S. D. Gross in the City of Washington has been signed by the President and become a law. The bills regarding the sale of milk in the District, removal of snow and ice from the sidewalks, requiring all persons employing female help in stores to provide seats for each female when not actually engaged, for the promotion of anatomic science and prevention of desecration of graves in the District of Columbia were passed.

HEALTH OF THE DISTRICT.—The report of the Health Officer for the week ending February 23 is as follows: Number of deaths (still-births not included): White 87, colored 52, total 139, Death rate per 1,000 per annum, white 24.60, colored 31.00. total 26.71. Death rate per 1,000 per annum for corresponding week last year, 17.69. Still-births: White 6, colored 9, total 15.

The report of the Health Officer for the week ending March 2 is as follows: Number of deaths (still-births not included): White 79, colored 59, total 138. Death rate per 1,000 per annum, white 22.38, colored 35.26, total 26.52. Death rate per 1,000 per annum for corresponding week last year 26.09. Still-births: White 5, colored 8, total 13.

PHYSICIAN TO THE POOR.—The Commissioners have appointed Dr. C. W. Childs physician to the poor in place of Lewis Johnson, resigned.

THE PUBLIC SERVICE.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending March 9, 1895.

Asst. Surgeon T. W. RICHARDS, detached from Naval Laboratory and Department of Instruction, and to the U. S. S. "Minnesota."

Asst. Surgeon JAMES STOUGHTON, detached from the U. S. S. "Minnesota," and to the Puget Sound Naval Station.

LETTERS RECEIVED.

Anderson, W., San Francisco, Cal.

Baker, Henry B., Lansing, Mich.; Biddle, J. G., Philadelphia, Pa.; Burres, W. T., Stockton, Cal.; Brown, A., Aniwa, Wis.; Brooks, S. D., Chicago, Ill.

Coffman, W. H., Georgetown, Ky.; Collins, J. S. Carlinville, Ill.; Crawford, H. L., Junction City, Kan.; Columbia Chemical Co., Washington, D. C.; Clary, Geo., New Britain, Conn.

Davis, Geo. S. Detroit, Mich.; Daggett, B. B., Corry, Pa.; Devlin, J. B., Denver, Colo.; Douglas, Richard, Nashville, Tenn.; Dodge, W. W., Burlington, Iowa.

Fehr, Julius, Hoboken, N. J.; Frontis, D. P., Ridge Spring, S. C.; Franklin, C. P., Philadelphia, Pa.; Ferguson, Frank C., Indianapolis, Ind.; Franzoni, C. W., Washington, D. C.

Guild, C. H. & Co., Boston, Mass.; Gerhard, J. Z., Harrisburg, Pa.; Galvano-Faradic M'f'g Co., New York, N. Y.

Hummel, A. L., (2) Philadelphia, Pa.; Hyde, Jas. Nevins, Chicago, Ill.; Hutchinson, Woods, Des Moines, Iowa; Holloway, S. W., Chicago, Ill.; Hyatt, B. F., Delaware, Ohio; Haldenstein, I., New York, N. Y.

Johnstone, Stuart, Chicago, Ill.; Johnson, H. L. E., Washington, D. C.

Keister, B. C., South Boston, Va.

Lehn & Fink, New York, N. Y.; Loar, L. T., Dingess, W. Va.; Lyons, Jno. A., Bear Creek, Wis.

Miller, Geo. W., Joplin, Mo.; Magee, W. H. Duluth, Minn.; Marks, A. A., New York, N. Y.; Morse, Lyman D., Adv. Agency, New York, N. Y.; Magruder, G. L., Washington, D. C.; McMurtry, L. S., Louisville, Ky.

Pettyjohn, E. S., Alma, Mich.; Powers, Chas. A., Denver, Colo.; Parsons, F. L., Philadelphia, Pa.; Priest, W. R., Concordia, Kansas.

Reed, C. A. L., Cincinnati, Ohio; Rückerfeldt & Co., St. Louis, Mo.; Robinson, R. D., Chicago, Ill.; Rosenberger, J. L., Chicago, Ill.

Sheboyan Binding & Box Co., Sheboygan, Wis.; Sabar, E. T., Jacksonville, Fla.; Sanderson, H. E., Stockton, Cal.; Smith, S. E., Richmond, Ind.; W. O., San Francisco, Cal.; Stewart, F. E., Detroit, Mich.; Stewart, W. P., Washington, D. C.; Smart, Chas., Washington, D. C.

Thompston, The Laboratory, Washington, D. C.; Thatcher, J. P., Buncetон, Mo.; Tuley, H. E., Louisville, Ky.

Williams, Dr., San Francisco, Cal.; Woodruff, J. C., Charleston, S. C.; Woodward, W. C., Washington, D. C.; West, C. B., Rome, N. Y.; Würdemann, H. V., Milwaukee, Wis.; Wyckoff, R. M., Brooklyn, N. Y.; Welch, J. P., Esmeraldo, N. M.; Wandless, H. W., Dallas, Texas.